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AMERICAN INSTITUTE OF MINING ENGINEERS.

LAFAYETTE COLLEGE, EASTON, NORTHAMPTON CO., PA., }
SECRETARY'S OFFICE, August 22, 1878. }

The next regular meeting of the Institute will be held at Lake George, about the first of October next. The Chairman of the Local Committee is Mr. CYRUS BUTLER, of 24 Cliff street, New York City. Further notice will be given as soon as the arrangements are completed.

THOMAS WHITWELL.

The death, on the 5th instant, at Stockton-on-Tees, England, of Mr. THOMAS WHITWELL, has caused great sorrow throughout a wide circle on both sides of the Atlantic. Mr. WHITWELL had not only become known through his admirable inventions to every member of the iron trade; he had also endeared himself personally to large numbers of his professional and business acquaintances, in this country as in his own. The circumstances of his death, although dreadful to think of, will add glory to his reputation, since they crown the record of a useful life with an act of grand self-sacrifice and heroism. According to the account which we publish below, he possessed, at the moment when blind terror would have forced an ordinary man to flight, the greatness of soul and the presence of mind to give to his companion the first opportunity of escape from the bursting flames which had overwhelmed them both. The sacrifice was made in vain. Neither the engineer nor Mr. WHITWELL survived his injuries; but the former lived long enough to make known the act of unspeakable generosity and courage by which Mr. WHITWELL had resigned the greater, and accepted the smaller, chance of life. Sir PHILIP SIDNEY on the battle-field, passing his cup of water to a wounded soldier whose need seemed greater than his own, has well been deemed a type of Christian knighthood. But what he did deliberately in weakness and calm patience, THOMAS WHITWELL did instantly, in the very clutch of sudden, fiery peril.

From our personal recollections of the man, we are ready to accept the statements of others, that this disregard of self was a distinguishing trait in his character. Mr. JAMES BOWRON, Superintendent of the Southern States Coal, Iron, and Land Company, of which Mr. WHITWELL was President, wrote to the *Iron Age*, immediately on receipt of the cable dispatch announcing the fatal accident, and before the particulars were known in this country, an interesting letter, giving such a picture of the man as harmonizes well with his heroic end. A devout Christian, and minister in the Society of Friends, he put his religion into practice with a hearty sympathy and sound judgment, promoting the sobriety, education, and comfort of his employés, encouraging athletic sports and innocent recreations, while, as Secretary of the Young Men's Christian Association for the northern counties of England, he labored with great success for the extension of that excellent non-sectarian institution, which is in so many respects what the Church should be, and is not. By a sad coincidence, he was specially interested in the development of systems for the protection of cities against conflagration; organized in Stockton a volunteer fire-brigade, of which, being personally a man of splendid physique, he was captain. Fire was the foe he fought; fire was the instrument of his business success; and fire, alas! became the means of his untimely death.

Both the terror and the glory of that death cast into shade for the time the solid achievements of his career. Yet these would have sufficed to make him famous. Indeed, they had already done so. At the age of 40, he was among those English iron-masters whose names are household words throughout the civilized world. As the patentee of the fire-brick hot-blast stove which bears his name, and which, after much discussion and experiment, has achieved in this country an acknowledged success; and as the leader in a strong movement for developing with English capital the industrial resources of the South, Mr. WHITWELL had peculiar claims upon the esteem of Americans. In his repeated visits to this country he had made many acquaintances among us; and none who recall his genial manners and his cordial and intelligent interest in all the evidences of progress here, can fail to share the heartfelt sorrow with which his death is regarded throughout the region of his residence.

Mr. JAMES BOWRON, in a letter to the *Iron Age*, says:

"Mr. WHITWELL was born at Kendal and educated at the Quaker's school in York. He served his apprenticeship as an engineer in the world-renowned works of ROBT. STEPHENSON & Co., Newcastle-on-Tyne. In 1862, being at that time about twenty-four years of age, he established himself at Stockton-on-Tees in company with his older brother WILLIAM, and there established three blast-furnaces. They had a very successful run, being only blown out in 1875 or '6. As the furnaces were by this time too small to compete with more modern plant, Messrs. WHITWELL erected three other furnaces of very large dimensions. They also had an extensive rolling mill attached, for the manufacture of light rails, rods, etc. They used a higher quality of ores than was customary in the Cleveland district, and always sold their iron at a special price. Mr. THOMAS WHITWELL is best known in the iron trade as the patentee of the hot-blast fire-brick stove, which, after a hard struggle to overcome prejudice, has been finally adopted at a very large number of furnaces, and is regarded as the leading hot-blast stove in the trade. He also introduced a useful and fuel-saving domestic hot-air fire-place. Mr. WHITWELL was deeply impressed with the great future of the American iron trade. He visited this country in 1874 and in 1876, and to his strong belief in the richness of the country must be attributed the prominent part he took in the formation and development of the Southern States Coal, Iron, and Land Co., London, of which he was chairman from the day of its formation until the day of his death. Another national feature which took great hold of him was the development of fire-brigades in the large cities. Mr. WHITWELL was a man of splendid physique, and organized a volunteer fire-brigade in Stockton, of which he was captain. He was ever foremost in promoting sobriety, education, and the comfort of the workpeople in his employment, and by his hearty coöperation, as well as generous donations of prizes toward swimming contests, and the formation of rowing clubs, gymnasia bands, etc., he found much useful and innocent recreation for those about him. He was a very devout Christian, being an acceptable minister of the Gospel in the Society of Friends. He was also the secretary of the Y. M. C. A. for the northern counties of England, and by his own exertions increased the number of their associations from two to about twenty-five within ten years. He was also president of the Cleveland Institute of Engineers."

In a subsequent issue, the *Iron Age* gives the following further information:

"On Monday morning, the 5th, something went wrong at the mills with a Bicheroux patent gas-heating furnace, and the advice of Mr. WHITWELL was asked. One of the pipes was leaky, and it caused the water to accumulate in the ash-hole below the furnace. Mr. WHITWELL, accompanied by the engineer, Mr. JOHN THOMPSON, went through the narrow opening and down the ladder into the ash-pit, and proceeded to remedy the defect. Shortly after they had gone down, however, an explosion occurred, and steam and flame were seen to issue from the opening through which the two had disappeared. It appears that by some means or other the damper of the furnace had been closed, and this caused gas to percolate through the front of the furnace and fill the stoke-hole where Mr. WHITWELL and his companion were. In the course of their examination they had removed some of the fire-bars, and the gas coming in contact with the fire, the explosion occurred, and the pit was filled with flame. The ignited gas belched forth from the furnace, and completely filled the hole where Mr. WHITWELL and Mr. THOMPSON were. Mr WHITWELL, with a disregard of self, which was a distinguishing trait in his character, and knowing that Mr. THOMPSON had a wife and family depending upon him, while he himself was unmarried, forbore to rush forward and make his escape from the fiery furnace first, but, as the engineer afterward said, Mr. WHITWELL told him to ascend the ladder and save himself. One can not but admire the fortitude of the man who could act thus when placed in such a position, and can not but the more regret his loss. Mr. THOMPSON scrambled out first from the flame-filled hole, and raised an alarm, but the men coming to their assistance were only in time to see Mr. WHITWELL emerge from the hole and fall down unconscious. Both men were shockingly burned, but Mr. WHITWELL'S case was the worst, and there were no hopes of his recovery from the first. He was most affected about the ankles, hands, wrist, neck, and face—the exposed parts—and was also internally injured through having inhaled the burning gas. The mouth and throat were scorched until it was impossible for him to articulate, while the lungs were congested. Shortly after the accident, Mr. WHITWELL was removed to his residence in Bridge Road, Stockton, and his brothers, Mr. WILLIAM and Mr. GEORGE C. WHITWELL, were with him till his death, which occurred the same night about ten o'clock, nearly eleven hours after the accident. For some six hours before his death, he was quite unconscious. Mr. THOMPSON was removed to his house in Mandale Road, South Stockton, and as he was not so seriously injured as Mr. WHITWELL, it was hoped that he would recover. However, he died on Tuesday morning, outliving his principal only six hours. Mr. WHITWELL was a native of Kendal, and was, as we have said, unmarried. He was only forty years of age." *

BRITISH MINING STATISTICS.

We are indebted to Dr. CLEMENT LE NEVE FOSTER for a copy of the statistical summaries reported for 1877 by the inspectors of coal and metal mines in Great Britain. The reports are made separately to the Principal Secretary of State for the Home Department, and the statistics which they contain are prepared by the inspectors from returns supplied by the mines. This is done under two statutes, the Coal Mines Regulation Act and the

Metalliferous Mines Regulation Act. Under the former, the summaries for twelve districts consist of four tables, relating to the coal, fire-clay, iron-stone, and shale mines of Great Britain and Ireland. From the first table, it appears that 494,391 persons were employed in and about these mines, namely, 395,025 under ground and 99,366 (including 5378 women and girls) above ground—a decrease from 1876 of 19,464 males and 677 females. We notice that of the females employed above ground, 20 were between 10 and 13 years of age, 545 between 13 and 16, and 4813 over 16. Underground none are allowed to work.

The second table shows that the mines produced in 1877 : Coal, 134,179,-968 tons ; fire-clay, 1,813,541 tons ; iron-stone, 12,014,356 tons ; and 838,395 tons of shale, etc., of which 3623 tons was alum-shale, 1300 tons oil-shale, 4271 tons limestone, 9065 tons building-stone, 3623 tons pyrites, 440 tons gannister. These figures, compared with those of 1876, show an increase in coal of 54,802 tons, a decrease of 258,442 tons in fire-clay and 145,224 tons in iron ore, and an increase of 205,739 tons in the miscellaneous department.

The two following tables exhibit the statistics of casualties, as compared with 1876 :

	1876.	1877.	
Fatal accidents	839	864	
Deaths therefrom	933	1208	
One fatal accident for	613	572	persons employed.
One death for	551	409	" "
One fatal accident for	177,580	172,276	tons of mineral produced.
One death for	159,688	123,217	" " "

The number of mines worked in 1877 under the Coal Mines Regulation Act was 154 less than in 1876.

The metalliferous mines of Great Britain and Ireland employed in 1877, as reported in the second part of this document, 57,395 persons, namely : Under ground, in Great Britain, 32,954 ; in Ireland, 1141 ; above ground, in Great Britain, 22,396 ; in Ireland, 904. The product of minerals was as follows :

	Tons.		Tons.
Arsenic, obtained at mines	4,111	Lead ore (dressed)	76,471
Arsenical pyrites	5,341	Lead ore (undressed)	3,938
Barytes	19,162	Limestone	528,010
Bauxite	2,763	Manganese	3,039
Bismuth	0 4-10	Ochre and umber	2,867
Brick-earth	2,411	Phosphate of lime	6
Building stone	331,101	Potter's and other clays	41,819
Calc-spar	2,353	Plumbago	....
Cement stone	2,304	Purbeck stone for paving, kerbs, etc.	13,228
Chert	3,290	Rock-salt (exclusive of the white salt made from brine)	207,942
Copper ore	65,269	Silver ore	143
Copper precipitate	628	Slate and slabs dressed	172,130
Dross spar	142	Slate undressed	80
Fire-clay and brick-earth	757	Steatite	68
Flagstone (dressed)	1,830	Tamping stone	100
Flagstone (undressed)	250	Tin ore dressed (*block tin*)	12,665
Fluor-spar	78	Tin ore partly dressed (*whits*) est. to cont. 103 tons *block tin*	1,023
Gannister	439	Tin ore undressed (*tin-stuff*) est. to cont. 573 tons *block tin*	11,634
Gold, 11 lbs. 11 oz. 5 dwt. 18 gr.		Uranium ore	2 cwts.
Gold ore, 1 cwt. 3 qr. 5 lbs.		Whinstone	18,308
Gold sulphurets	3	Wolfram	15
Gypsum	73,908	Zinc ore	24,228
Iron ore	2,815,849		
Iron pyrites	17,795		
Jet	Unknown.		

So far as we can discover, there are no items in these returns which have appeared in the returns under the Coal Mines Act, which includes also iron ore, pyrites, etc. Hence, by adding the two summaries together, we may arrive at a notion of the total product of the United Kingdom, operated under the two acts. Mr. Robert Hunt's statistics for the whole kingdom may cover other mines. We believe his report for 1877 is not yet ready.

A summary of fatal accidents and deaths in the metal mines shows of the former 87, and of the latter 97, namely, 86 under ground and 11 above ground. There was in 1877 one fatal accident for 651 persons employed, and one death for 587 persons employed. We compile from the detailed figures given for the coal, iron-stone, clay, and shale mines on one hand, and the metalliferous mines on the other, the following instructive classification of fatal accidents for 1876 and 1877 :

		Explosions of fire-damp.	Falls of coal or rock.	Overwinding, breakages, and falls in shafts.	Gunpowder explosions.	Trams, buckets, etc.	Inclined planes.	Other accidents under ground.	Total under ground.	Accidents on surface.	Grand total.
Coal, etc., mines	1876	42	430	120	16	61	50	19	738	101	839
" " "	1877	45	432	117	14	78	43	37	766	98	864
Metal "	1876	..	24	13	12	..	1	10	60	6	66
" "	1877	..	36	18	8	1	1	12	76	11	87
Total		87	922	268	50	139	95	78	1640	216	1856

These figures illustrate anew the familiar proposition, practically ignored to such an extent by bosses and workmen, that the most prolific cause of fatal accidents in mining is the fall of insecurely-supported ground. In the great majority of instances, death from such a cause is due to the recklessness of the individual. The same may be said with regard to the accidents from gunpowder explosions, which constitute, however, but a small proportion of the whole. Analyzing the large item of shaft-accidents, we find that out of 268 accidents under this head, 113 consisted in the fall of the victims from the surface or from part-way down ; 63 in the fall of objects through the shaft upon the victims ; 42 occurred to men ascending or descending by machinery ; and only eight by the breaking of ropes or chains. A similar examination of other parts of the table leads us to the conclusion that over two thirds of these fatal accidents resulted from the direct and culpable carelessness of the victims. Disasters fairly attributable to a niggardly or ignorant administration on the part of proprietors appear to have been very few. Employers in Great Britain, as in this country, evidently take better care of their workmen than the latter take of themselves.

Explosions of fire-damp, though often caused by the recklessness of the miners, may be due to defects in ventilation that could be remedied. They have a frightful distinction separating them from most other classes of mine accidents : namely, they include in their effects large numbers of men who are at the time both innocent and ignorant of the impending peril. Thus the 42 explosions of 1876 killed 95 persons, and the 45 explosions of 1877 killed 345.

Dr. Foster's report (for Cornwall, Devonshire, Dorsetshire, and part of Somersetshire) notes as the principal features of the mining industry in his district during 1877, the decrease in the production of the ores of copper, iron, lead, and manganese, and the increase in that of arsenic, arsenical pyrites, and tin. The fall in the price of tin, occasioned by the great supply from Australia, has actually stimulated the production, the price having fallen 20 per cent and the product increased about 6 per cent since the beginning of 1875.

In discussing, with his usual clearness and good sense, the causes of the accidents in his district, Dr. Foster points out, with reference to the important class, "Falls of coal, etc.," that "in the main, the accidents happened from unexpected falls ; * * * a very large proportion of the casualties. As a rule, when the danger is very evident, extra precautions are taken, and lives are not sacrificed. The lesson to be learned is, that there is always danger from falls under ground ; and it is only by the greatest watchfulness on the part of the men and agents, and by constantly putting in timber, even when not thought immediately necessary, that accidents of this class can be diminished in number."

Under the head of gunpowder explosions, Dr. Foster makes some interesting comments upon the three fatal and 18 non-fatal accidents of the year in his district. Two of the fatal accidents were from dynamite, failing to explode with the primer, and subsequently exploding in whole or part when hit by the miner's tool. Several non-fatal accidents occurred from similar causes. The practice of boring a new hole near one containing an unexploded dynamite cartridge, seems to be quite perilous, by reason of the possible exudation of nitroglycerine oil from the cartridge, and its passage through some fissure into the surrounding rock, there to lie in wait for some unlucky blow from pick or sledge or drill.

Dr. Foster describes another reprehensible practice, namely, the use of dynamite and gunpowder together. Some miners, he says, do not use a detonator to explode the dynamite, but, after inserting the cartridge, put in a little gunpowder with the fuse, and then tamp up the hole as hard as they can. They give as a reason that the explosive thus does more work than if fired without tamping ; and, as they dare not tamp on the top of a dynamite detonator, they use a little powder to take its place. The risk of this manipulation, we need hardly say, is very great. One of the accidents reported by Dr. Foster arose from it in this way. Two men had fired a hole charged with dynamite and gunpowder, and, having heard a report, returned and found that the shot had done no execution. In reality, the powder had exploded without exploding the dynamite. They commenced to bore out the hole again for a new charge, when the dynamite exploded and seriously injured them. But, besides this risk, the practice referred to involves all the ordinary risks of tamping—the most dangerous part of blasting with gunpowder. Since dynamite can be fired without tamping, it is a pity to incur that peril unnecessarily. The report before us shows several cases of injury from reckless tamping with iron bars.

A large part of Dr. Foster's time was taken up in enforcing that section of the law which requires abandoned shafts to be fenced. In these and other particulars he has shown a good deal of vigor, and inspired among the mine-owners a wholesome respect for the law. Among the offenders who have been convicted and fined, we notice the Ebbw Vale Steel, Iron, and Coal Co., Sir Richard Vivian, and other eminent individuals and corporations. Even the Duke of Buckingham only escaped by promising to do better, and doing what he promised. *

THE PRESERVATION OF MINE TIMBER.

It is remarkable that so little has yet been done in this country with the view of preserving timber used either in the mines, on the railroads, or in construction ; for in many mining districts, in particular, the timber question is an exceedingly important one, amounting to enormous sums annually. In the anthracite mines of Pennsylvania the cost of timber amounts to probably half a million dollars a year, a large part of this being for repairs due to decay. In the damp, and in some places

warm, air of the mines timber decays very rapidly, its average life being but a few years, and in some cases not more than a year. In the deep and hot mines on the Comstock, the consumption of timber is enormous. In 1877 the expenditure under this item was reported as $46,276 in the Consolidated Virginia, and in 1871, in Chollar Potosi, $83,694.

Yet we hear of no serious effort being made to decrease this enormous outlay by prolonging the duration of timber by treating it with any of the known preservatives.

A very elaborate series of experiments upon the effect of these different preservatives was made at the Commentry collieries in France, and they afford much valuable information.

We summarize the results of these experiments, in order to show our mine owners the enormous saving in timber the adoption of some of these processes would effect, and the small cost of the necessary plant and chemicals. Both wood-tar and coal-tar are often used as preservatives for wood; the former is said to be much the more effective, but its costliness prohibits its use. Tar distilled from peat is said to occupy an intermediate place between wood and coal-tar, and it is possible its use may be greatly extended, for it is possible to manufacture it at a low cost in many parts of the country.

Coal-tar, or tar, as we shall simply call it, was found in the Commentry experiments to increase considerably, sometimes doubling, the life of oak, though it did not materially increase that of pine. It was found to produce about the same effects when applied cold as at a temperature of 140° Centigrade.

Sulphate of iron.

1. Oak timber that without preservative lasts but two years before showing signs of decay, will last 30 years after immersion in sulphate of iron. It quadruples the life of oak mine-props.

2. An immersion of 24 hours in a solution of 200 grains per liter gives as good results as a longer immersion and stronger solution.

3. The treatment is as effective on wet as on dry wood, and on pine as on oak.

The cost of sulphatization was only 0·05f. or one cent per running meter (39½ inches) of prop timber. The Commentry experiments were very numerous, and included tests of nearly all the best-known preservatives. The results of these several tests are most carefully tabulated, with diagrams showing the proportion of decay in the wood at the close of the tests. The following statement represents the *mean* of all the tests made on all the different woods. Inasmuch as the effectiveness of any preservative varied greatly with the kind of wood acted on, the figures are not strictly correct for any particular wood. The standard of comparison is the average duration of the several woods without preparation taken as unity:

	Relative duration.		Relative duration.
Without preparation	1·00	Sulphate of copper	9·77
After immersion in mine water	1·40	Sulphate of iron	11·11
Carbonization	2·44	Creosote	16·36
Tar	7·42	Chloride of zinc	34·00

Without preparation, the average duration of oak was 4½ years; of beech, 2 years; pine, cherry, poplar, 1½ years; acacia, 6 to 9 months. Experiments were also made with lime as a preservative, but for oak sulphate of iron was found always preferable to it. On other woods lime produces better results than sulphate of iron for an immersion of one day, but is not as good for a longer immersion.

COST OF APPARATUS.

The experiments seemed to lead to a preference, all things considered, for sulphate of iron as the preserving agent. The cost of the apparatus necessary to sulphatize 100 props a day was as follows:

	Francs.		Francs.
Movable crane	700	Railroad, etc	200
Wagon	60	Trench 10 meters long	300
Five cages	600		
Total			1960 or $372

The cost of materials was:

0·11 kilos. sulphate of iron at 0·17f	0·0187
Labor	0·0150
General expenses and sinking fund	0·0163
Total	0·05

or one cent per running meter of prop.

THE INTRODUCTION OF STRAW-BURNING ENGINES has gained considerable headway in Europe. In the general arrangement, the principle of moderately high piston speed, with a medium diameter of fly-wheel, has been preferred to a long stroke and slow speed with a larger fly-wheel, because the motion of the engine at a high speed is more uniform, and is not liable to be so easily affected by the sudden shocks to which all small engines are exposed. The average piston speed is from 280 to 300 feet per minute; number of revolutions of the fly-wheel, from 140 to 150 per minute; the speed of the periphery of the fly-wheel varies from about 2000 to 2500 feet per minute, according to the size of the engine. All the bearings of the crank-shaft, connecting-rod, and piston-rods are large and of great length, thus distributing the strain over a larger surface than is theoretically required. The apparatus for feeding the straw into the fire-box consists of two toothed rollers placed at a minimum distance of about one fourth of an inch apart, and capable of rising so that the distance between them can be increased to one and one fourth inches. The under roller is set in motion by means of a strap from the crank-shaft of the engine, and makes about forty-five revolutions per minute; the upper roller moves at the same speed.—*Bost. Transcript.*

THE RARER METALS AT THE PARIS EXPOSITION.

Written for the Engineering and Mining Journal by Professor Benjamin Silliman.

1. PLATINUM AND ITS ASSOCIATE METALS—MESSRS. JOHNSON, MATHEY & COMPANY'S REMARKABLE EXHIBIT—FUSION OF HUGE INGOTS OF PLATINUM BY THE OXY-HYDROGEN BLOW-PIPE.

To most observers who pass the magnificent exhibit of Messrs. JOHNSON, MATHEY & COMPANY, of Hatton Garden, London, the show of huge platina ingots and vessels, and of the rare metals and their products, associated with platina, offers probably few attractions. But this exhibit is, nevertheless, one of the most noteworthy features of the Exposition, and, to those at all familiar with the subject, is most suggestive of the great progress which has in comparatively recent times been made in a branch of industry which is the foundation or corner-stone of many important chemical manufactures, and of much that is most valuable in physical and chemical research. We have not infrequently to remark that there is one, and only one, substance in nature which subserves a special end in science or art, and for which there is no good substitute or proper equivalent. Thus, mercury alone of all things is fitted for the construction of the barometer and the thermometer, and for many other uses in physical research is simply indispensable. Gold alone seems the one metal adapted by all its remarkable properties for coinage and ornament. Iron, including steel, subserves the wants of man in untold uses for which there is absolutely no substitute. And the same remark holds good for platinum, upon which the chemist depends in almost every chemical analysis, and without which the manufacturing chemist would be unable to conduct those great operations in the production of cheap and pure sulphuric acid, on the success of which hang many and varied industries, the mere enumeration of which would fill a column.

2. NEW ALLOY OF PLATIN-IRIDIUM FOR THE METRIC UNITS.

More recently platinum has assumed a new importance as alloyed with its rare associate metal *iridium*, for the production of the standard meter with which the International Committee on the Meter is now occupied. This alloy, of ten per cent of iridium and ninety of platinum, is the production of Messrs. JOHNSON, MATHEY & Co., and is believed to offer advantages which no metal hitherto employed for the standard measures possesses.

Platinum is a metal found in the gold washings wherever alluvial gold is found, but usually in very small quantity. In the Russian mines of the Ural and in Siberia, it is found, however, in considerable abundance; occasionally in nuggets of twenty pounds' weight, or even more, but usually only in grains and flattened scales, associated with gold and with certain other rare metals, familiarly known as the platinum-metals, with which the platinum is also frequently alloyed. These metals are chiefly iridium, osmium, rhodium, ruthenium, and palladium. The native alloy of iridium and osmium is familiarly in use for pointing gold pens, for which its remarkable hardness and unchangeable nature particularly adapt it. Fine specimens of this *iridosmine* are found in the gold washings of Northern California and Oregon, associated with platina, but the quantity is not very considerable. It is with delight that the chemist sees in the exhibit of Messrs. JOHNSON, MATHEY & Co. large masses of these rare metals in a state of great purity, obtained by them in the preparation of chemically pure platinum from its crude state. For example, there is a cubical block of pure ruthenium, weighing two kilos. (about 4½ lbs.), the product of the treatment of about ten millions of dollars' value of platinum, and itself valued at 40,000 francs; a like mass of pure iridium, fused by the oxy-hydrogen blow-pipe; and the same quantity each of rhodium (fused ingot), osmium, and palladium (forged ingot).

3. PALLADIUM IN UNEXAMPLED MASSES—OCCLUSION OF HYDROGEN BY PALLADIUM WONDERFULLY ILLUSTRATED.

But more extraordinary for quantity is the mass of pure palladium, weighing 65½ kilos., and valued at 260,000 francs. This mass is composed of a great number of smaller masses, each representing a separate melt, and simply agglutinated into a huge composite ingot, to obtain which about 125,000,000 francs' worth of native gold and platinum were worked over. No such mass of this curious and rare metal was ever seen before. The very remarkable relation of palladium to hydrogen may be known to many of your readers—a property first observed by the late Dr. GRAHAM, of London, the distinguished chemist and Master of the Mint, who first described what he called the *occlusion* of hydrogen in the pores of the most solid fused and coined palladium—a property in virtue of which palladium can imbibe, so to speak, more than a thousand times its own volume of hydrogen gas and hold it with great permanence at ordinary temperatures. This is not a fact of merely curious scientific interest; nor is it peculiar exclusively to palladium; for Dr. GRAHAM found that some meteoric irons, especially that of Lenarto, which he specially studied, held also many occluded volumes of hydrogen gas which had accompanied the meteor from the regions of space. Considering the enormous condensation of hydrogen occluded in palladium, Dr. GRAHAM was led to the not improbable suggestion that this element, which others before him had suggested might be a metal in vapor, must exist in palladium as an alloy, and he was thus led to propose for the metal the name HYDROGENIUM. This class of facts has quite recently received great expansion by the researches of Dr. WRIGHT, of Yale, who has followed the subject into the domain of astronomy and drawn important inferences respecting the tails of comets and nebulæ as connected with the occlusion not only of hydrogen, but other gases in meteoric stones and irons. This curious subject, so full of scientific interest and fertile of speculation, has a magnificent illustration in the present exhibit of Messrs. JOHNSON, MATHEY & Co., who show a disk of palladium within which one thousand volumes of hydrogen gas are condensed by occlusion—a volume of gas which would be represented by a column of 2000 millimeters height and 100 millimeters in diameter.

The original palladium disk had exactly 100 millimeters diameter and a thickness of precisely 2 millimeters. It was, before imbibing the enormous volume of hydrogen which it now holds, perfectly flat; and it was gauged by a ring within which it exactly fell. Now this disk is a concave mirror, the new form being occasioned wholly by the molecular displacement due to the hydrogen it has absorbed; it no longer enters its gauge-ring, and its 100 millimeters diameter are now enlarged to — 102·5 millimeters, and its original weight of 187·3775 grams is now increased to 188·2882 grams. This remarkable absorption of hydrogen

has no visible effect upon the luster, color, or tenacity of the palladium-alloy of hydrogen, if indeed it be an alloy. The hydrogen absorbed by palladium enters this metal when it is made part of the circuit of a voltaic battery, the gas usually evolved at the positive pole being then taken into the substance of the solid metal. Palladium has about the same value as gold (a little more), and is as yet too rare a metal to play any very important part in the arts. Nor has it the beauty of gold, although it has certain physical and chemical properties which give it a scientific value.

4. New Forms of Platinum Boilers and Apparatus fashioned solely by Autogenous Soldering and the Hammer—Dr. Hare's Early Success in Fusing Platinum—His Method as Modified by De Ville—250 Kilos. in One Ingot.

But it will be asked what of platinum and its uses, of which we spoke at the opening of this letter? I reply that the value of platinum has been long recognized for the manufacture of boilers or stills, in which to concentrate commercial sulphuric acid after that powerful agent has attained a degree of concentration in the leaden chambers which requires the use of some containing vessel in which to complete the work—a substance upon which no chemical action was possible. The choice lay between glass and platinum. Glass may be and is used; but its use is attended with very great risk to the lives of the workmen; and even if the loss of life by the breaking of the glass boilers is avoided, this frequent accident is always attended with very great annoyance and risk, and a serious loss. Formerly boilers or stills of platinum of large size were used costing from $15,000 to $30,000 each, more frequently about $20,000. But this very considerable amount of capital locked up in these costly vessels—of which several were required in each large acid works—was in the old manner of construction attended with a comparatively limited production of acid. Now, by a very simple modification in the form and mode of using the platinum boilers, their cost is greatly reduced, and the daily product of concentrated acid at the same time very much increased. The new boilers, first introduced by Messrs. J., M. & Co., are rectangular in shape, with corrugated bottoms, which offer extended surface, with additional strength and evaporating power; so that the economy of the new form of boiler is shown to be about 50 per cent each, in the first weight of platinum, and in the consumption of fuel, with an important saving in the cost of attendance and labor, the latter being declared by an elaborate report from one of the most extensive of the continental works not less than 70 per cent over the old system. Not to dwell on particulars which are merely technical, it remains to say that the former method of fashioning these large boilers, and the tubular siphons and condensers of platinum connected with them was supposed to require the use of gold to solder the joints. By the new system of manufacture, first introduced by Messrs. Johnson, Mathey & Co., autogenous soldering of all the joints is accomplished by the oxy-hydrogen blow-pipe, and this work is done so neatly and completely that the eye detects no trace of the lines of union.

Long before the fusion of this very infusible metal was attempted in Europe, Dr. Hare, of Philadelphia, had succeeded, as early as 1840, in melting several pounds of platinum by his oxy-hydrogen blow-pipe (Hare's own invention); and the method in which he accomplished this difficult work was substantially the same which is in use to-day in London and Paris. In fact, Hare's old assistant, Mr. Bishop, now of West Chester, in Pennsylvania, still practices unchanged the art of fusing platinum for the manufacture of chemical vessels, precisely as he learned to do it over thirty years ago in his old master's laboratory in the University of Pennsylvania. In fact, the gas-jet employed now in Paris for this purpose is in principle the same which Prof. Silliman described in a paper communicated by him to the Transactions of the American Philosophical Society of Philadelphia, early in this century, on the fusion of platinum and of many other substances, metallic and non-metallic, previously deemed infusible.

One may see to-day in the Exposition in Paris the crucible now used for the fusion of platinum on a large scale by a series of five or six large jets of Hare's compound blow-pipe. The special apparatus exhibited is a block of chalk, of the Paris basin, about a yard long by a foot broad, and divided horizontally into two equal halves. In the upper half are the jets, placed equidistant along the length of the ingot mold, each provided with its pair of gum-elastic gas tubes and stop-cocks. The ingot mold proper is fashioned out of the lower half of the block, and its cavity is capable of holding an ingot of 250 kilos. (quarter of a ton), of molten platinum!—a quantity which Messrs. Johnson, Mathey & Co. are prepared to increase considerably if the requirements of the International Commission on the Meter shall demand it. I could not but think, as I examined this apparatus, with what delight Dr. Hare would have contemplated the result of his invention, at which he labored so early and so well; and I am happy in this opportunity of reminding your readers that we may justly claim for the United States a large share of the merit of these very remarkable results.

For a very long course of years the only method known for working platinum was by that first proposed by Dr. Woolaston, of England, the treatment of its sponge by the mechanical processes of swedging and forging with heat, and thus producing an imperfect welding into a mass which was never quite homogeneous, nor could it be of any great magnitude. Never, until Hare fused many pounds of platinum into perfect fluidity was this metal seen in a state of complete uniformity of texture. Now, thanks to the efforts of Prof. H. St. Claire Deville and of Messrs. Johnson, Mathey & Co., Hare's methods have been improved so that we can now produce perfectly homogeneous masses of platinum of any desired magnitude; and the consequences are important, not only for commerce and the arts, but science profits by it for the purpose of producing the new standards of metric unity. The pile of beautiful, lustrous *bricks*—big as common house-bricks—of platinum, fused by the oxy-hydrogen blow-pipe, as seen in Messrs. Johnson, Mathey & Co.'s exhibit, is a sight to enliven the eyes of those who remember when the fusion of a globule of this metal as large as a pea was considered a splendid class-room experiment! The new alloy of 10 per cent iridium and 90 per cent platinum, which has been adopted by the International Commission, has a density of 21·52, and combines with desirable hardness a remarkable uniformity of texture and strength. It is exhibited by Messrs. J., M. & Co. in various forms; *e. g.*, the new standard meter of a cross-section somewhat resembling the letter H or more like four capital Vs placed point to point with a space between them—a form calculated to afford combined strength and lightness. These rules are now produced from the fused ingots by rolling and planing on a planing-machine—a method which secures a uniformity of texture and molecular arrangement not before possible; a guarantee that time will work no changes in the units thus fashioned; a circumstance which, as is well known, destroys the value of the old platinum units formed by the imperfect methods before in use. The standard thermometric meter is also made hollow and square, and for the geodesic rule is made *four* meters long. Tubes of iridio-platinum are also exhibited, calculated by the designs of H. Sainte-Claire Deville and Mascart, to determine the permanency of the physical properties of the new rules and the coefficients of dilation of the alloy and of mercury. I saw these tubes and the new rules in process of testing by the most rigid and exhaustive method in Deville's laboratory at the École Normale in Paris. The results of these trials are not yet ready for publication, nor has any notice of the new methods of observation as yet been published. But the commission is making thorough work, and its approaching session in September will bring together in Paris all the members, of whom our own worthy representative is Mr. Hilgard, of the Coast Survey, already present in Paris and in communication with his colleagues. From what has been said, it will be seen that platinum occupies no mean or subordinate place in respect to scientific and practical interest. Many other very interesting products of the platinum industry are seen in the case of Messrs. Johnson, Mathey & Co., such as a complete set of standard weights of the new iridium alloy, from 1 kilo. to 1 milligram; also, a fine tube of platinum, only 0·05 millimeters diameter, and 500 millimeters long. Many curious and interesting pieces of platinum apparatus, for chemical and assaying use, are also shown; square and round serpentines, in platinum of curious and most difficult workmanship; and the new apparatus by Deville & Debray, for the manufacture, on a large scale, of pure oxygen, by decomposing sulphuric acid in contact with an extended surface of platinum heated to redness.

The value of the metals and products exhibited in this case is said to be not under £100,000. Of the rare and curious chemical products—the very poisonous osmic-acid, in beautiful, very innocent-looking, colorless, needle-like crystals, securely caged in a large tube of glass; the lovely, many-colored platino-cyanide of magnesium, most beautiful of metallic salts; the sodio-chloride of rhodium, and the vanadate of ammonium (which may now be had by the ton, though lately so rare that few chemists have seen it—parent of the only pure black dey), we can not take space to speak.

But it would be an unpardonable omission, in speaking of platinum and its industry, if we failed to say that there are several other exhibitors in this line—all, I believe, in the French section—(no others were noted). Of these, one firm, at least, has a wide repute of long standing, Messrs. Desmontis, Quennessen & Lebrun, 56 Rue Montmartre, Paris, who exhibit several large stills for sulphuric acid soldered with gold, in the old fashion—two round and two oblong, and one upright still. They also show two magnificent lumps of the native ore of platinum, from Siberia, finer than any thing seen this year from Russia, in the Russian section, but not better than the Muscovite showed us in Philadelphia. Messrs. Godart & Coulinaw also show a most attractive assortment of small chemical apparatus in platinum, at very moderate prices, to the joy of many chemists. H. Chapins, 36 Rue Greneta, Paris, exhibits the patent acid pans of platinum, on the system of Faure & Kessler, said to be capable of concentrating 3500 kilos. of acid each in twenty-four hours.

It is curious to observe that the French makers, despite Deville's experiments, and the eminent success of their English competitors, still adhere to the old methods of gold soldering of platinum, and of fashioning vessels from platinum which has not been fused—a kind of conservatism little to their commercial advantage.

It is hardly needful to add that the United States makes no show whatever of platinum—our chief maker, Mr. Bishop, having nothing in Paris, while the gold-pen makers alone show any thing of the platinum metals, and these quite incidentally, in the nibs of iridosmine which point their pens.

(TO BE CONCLUDED IN OUR NEXT.)

The Bankruptcy of the Union Consolidated Mining Co., of Tennessee.—Mr. E. Miller, formerly Assistant Superintendent of the above company, under Mr. J. E. Raht's régime, has been appointed receiver, and is now on his way from the West to enter on his duties. It is also said that the clique in control of the property made one or more mortgages of the personal property to a number of its members, with a view of making themselves preferred claimants, and that the miners' and laborers' wages have not been paid for over three months. Altogether, the matter has throughout an exceedingly unsavory odor.

New Telephone Diaphragm.—Louis Ollivier, of Elbeuf, believes that the flat form of the receiving diaphragm interferes with the proper reproduction of the vocal *timbre*. This timbre is produced by the more or less complete blending of different harmonics. Helmholz, by the aid of his resonators, has been able to isolate, successively, the fundamental tone and the different harmonics. After having thus analyzed the sounds, he has recombined them by synthesis. In order to have a diaphragm which may vibrate in unison with various harmonics, Ollivier uses a concave plate of varying thickness, imitating, in some respects, the tympanum of the ear.—*La Nature.*

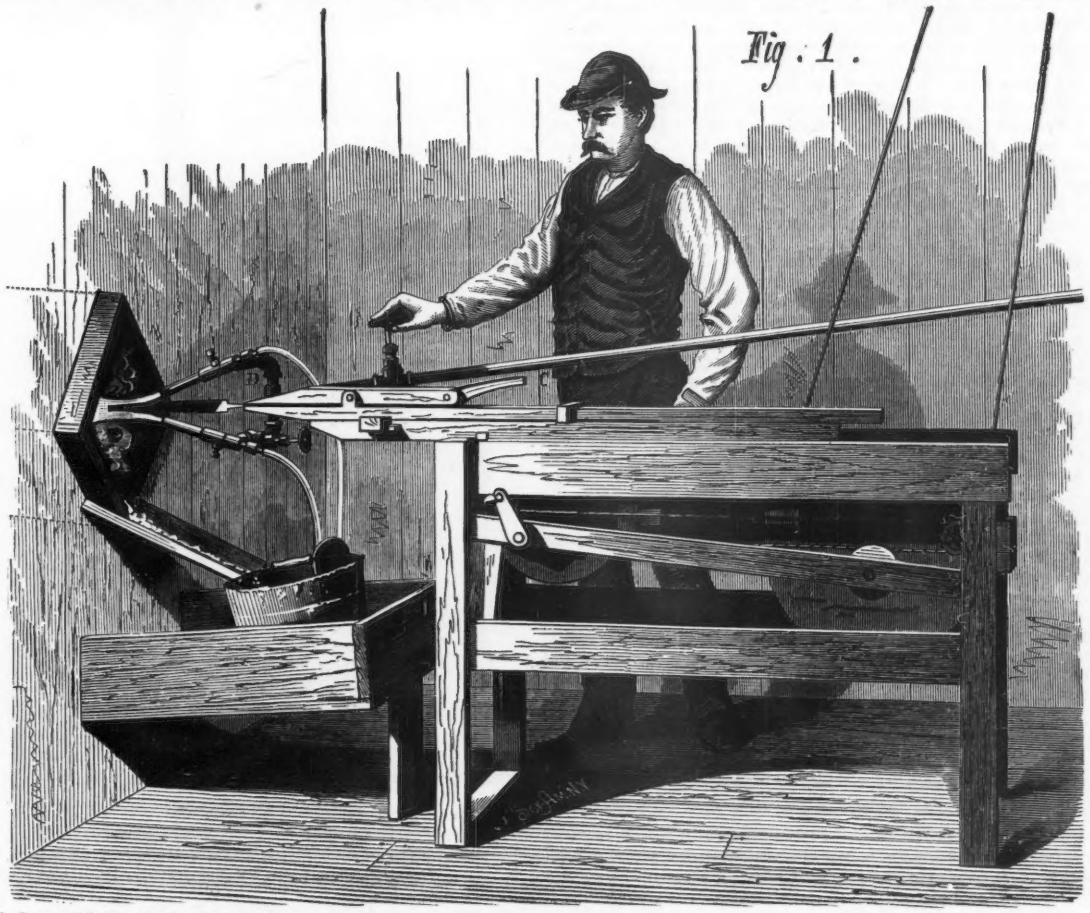
Photographic Impressions on Silk Stuffs.—Messrs. Allard & Guyot, silk manufacturers of Lyons, are introducing a new industry, the production of photographic impressions on stuffs. They sent to a recent meeting of the Photographic Society several pieces of silk, with a variety of photographic pictures printed on them—among others, some large medallions representing pictures of the old masters. These specimens are no less than 131 ft. in length. The process by which they are produced is not given, but there is reason for believing that the prints are made with salts of silver. But however that may be, this application of photography, which ever since the discovery of the art has been sought after, and made the object of numerous more or less successful experiments, appears now to have been successfully realized.—*Engineer.*

Economical Value of Solar Heat.—In experimenting with his solar heating apparatus, Mouchot has found that the most satisfactory material for mirrors is either silver or brass, covered with a thin layer of silver by galvanizing. The variations of solar intensity in Algiers, between 8 A.M. and 4 P.M., are generally slight. The quantity of heat gathered on a square meter, per minute, varies from 6 to 9·8 calories. A supply of seven calories enables a reflector of a meter square to boil, in less than 12 minutes, a liter of water at 20°, and produces hourly 778 grams, or 1322 liters, of steam at the normal pressure. These results are only two thirds as great as he anticipates from larger receivers. He proposes soon to present to the academy a description of his great receiver of twenty-five square meters, which is to be placed in the Universal Exposition.—*Comptes Rendus.*

SHARPENING FILES BY THE SAND-BLAST.

Files are never, even when new, really sharp, as the act of cutting by the entry of the chisel creates more or less of a curl or bur backward, as shown in section at *A*, Fig. 2, on the extreme points of the teeth; and when put to service soon break off, leaving the points broken and jagged, and often breaking off their entire length, catching between other teeth, to destroy them and deface the work by scratching and pinning, so universally attending all new files.

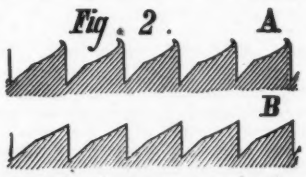
This improper shape is changed to a regular chisel shape, as shown at *B*, Fig. 2, by the application of the well-known sand-blast—a stream of sand, driven by steam or air, at an angle of from ten to fifteen degrees from the handle end of the file, which grinds off the curl or bur, making a stronger and a sharp, chisel-shaped tooth, without in the least disturbing the original temper. There is but one general principle upon which any cutting edge can be sharpened, namely, by removing a portion of the material from one or both sides of the cutting edge. In sharpening a file, only the back side of the teeth is ground. A grindstone is simply sand cemented into solid form, and is used to sharpen most cutting edges. A sand-blast is sand and steam in a loose state, but acquiring the effect of solidity by the power employed to project it. Its



effect when applied to old files is both to sharpen and re-sharpen, perhaps from ten to twenty times, so long as there are teeth to sharpen.

The method and apparatus for applying the blast are shown in Fig. 1. The file is held by the machine between the two blasts of steam and sand, with a slow forward-and-back, with to-and-fro and side movements to give the file an even grind. The sand and water are drawn from the reservoir by the steam in the pipe *C* entering the nozzles at *D*. The jets mingle and enter the large inclined tube out of which the sand and water run back into the reservoir, to be used over until worn out. When dead smooth files are to be ground, the pipes in the reservoir are raised, so that only the water holding the finest sand in suspension is used, and a very fine whetting effect is produced.

The length of time required is in proportion to the dullness of the file and amount of steam pressure. A reasonably worn-out file, 12



inches long, with 60 pounds of steam may be sharpened in about one minute and a half; but if sharpened as often as it should be, to give the greatest amount of wear, only about half a minute is necessary.

We are informed that a new file, with the aid of a number of grindings, has outlasted six others of the same size and make not so ground, and displaced fifty per cent more metal with the same number of strokes, and that a worn-out file, not mutilated, sharpened with the sand-blast, will do more service than a new file not so treated.

The inventor of this ingenious device is Mr. MILO A. RICHARDSON, Bridgeport, Conn., who may be addressed for further information.—*Polytechnic Review.*

THE PROTECTION AND PERPETUATION OF FORESTS.

There are few subjects of more importance or that are attracting more attention among thinking men at the present time than the rapidity with which our forests are disappearing, and the inevitable high price of timber in the near future, to say nothing of the direful results of treeless plains and drying streams.

It has recently attracted the attention of State and general government officers all over the country. It was only two years ago that Governor Hartranft, of Pennsylvania, in his annual message to the Legislature, earnestly recommended the passage of laws for the protection and perpetuation of timber. This State was originally one of the heaviest wooded portions of the country; but her timber is now virtually gone, and she feels the need of doing what should have been done a quarter of a century ago.

To the uninitiated it will only be necessary to give them an idea of the immense annual consumption of timber in this country to convince them that this move is highly proper, if not a dire necessity. We have now in this country about 90,000 miles of railroad, and as railroads are one prime cause of the rapid disappearance of forests, the annual consumption of ties or sleepers alone is 40,000,000, or thirty years' growth of 75,000 acres. To fence these roads would require at least 130,000 miles of fence, which would cost $45,000,000 to build, and require at least $15,000,000 annually to keep in repair.

We have now mentioned but two items of consumption for railroads, and will pass to the telegraph lines. We have 75,000 miles of wire, which requires in its putting up 800,000 trees, while the annual repairs must take 300,000 more.

The little, insignificant lucifer match consumes annually in its manufacture 300,000 cubic feet of the finest pine. The brick that are annually baked require 2,000,000 cords of wood, which would sweep the timber clean from 50,000 acres. Shoe-pegs are quite as important an article as matches or brick, and to make the required annual supply consumes 100,000 cords of fine timber, while the manufacture of lasts and boot-trees takes 500,000 cords of maple, beech, and birch, and about the same amount is required for the annual supply of plane-stocks and the handles of tools. The packing-boxes made in the United States in 1874 amounted to $12,000,000, while the timber manufactured into agricultural implements, wagons, etc., is more than $100,000,000.

Now here are only a few items of consumption—for it could be continued indefinitely—and is enough to give an idea of the immense and rapidly increasing demand for timber, and to prove conclusively that the timber of our country is being used much more rapidly than it grows.

Many of our forest trees are rapid growers, but such are of but little use save for the condensing and distributing of moisture, and for shade; for it is the slow-growing trees that are valuable, and little timber is of value, either commercially or mechanically, before it is from 75 to 100 years old.

The farm and rural fences of this country consume an immense amount of lumber and timber annually, and as we grow older as a nation, this consumption may, and probably will, be reduced by the more general use of live fences or hedges. Our consumption of timber is not only daily on the increase, but our exportation of timber is also rapidly increasing. Our staves go by the million to France annually; walnut, oak, maple, and pine to England, and spars and docking timber to China and Japan. The

American people are too prone to forget in the interest of to-day what is due coming generations, if not the welfare of the present. It is a simple matter of duty—if no higher influences can be brought to bear on the subject—that we pave the way for the generations that will follow us. It is a simple impossibility for the most acute vision to penetrate the vail of futurity, and is, no doubt, a wise provision of Providence. But it appears to me that the mistakes made by past generations should be a warning to the present. Millions of square miles of the Eastern Continent are to-day a barren, sandy, arid waste, that centuries ago were productive and fertile, but reduced to a barren condition by the denudation of the forests, thereby dispelling the moisture and consequently the fertility. We are doing the same thing in this country to-day.

The drying rivers of Europe are now being investigated by a commission of engineers. For a certain number of years, the Danube and other large streams, especially the Elbe and the Rhine, have been gradually diminishing. The Austrian Engineers' and the Architects' Union have decided that it is all owing to the destruction of the forests.

A country favorably situated as ours is, with a wide expanse of seacoast, penetrated by bays and magnificent rivers; whose soil is rich, fertile, and productive; whose inhabitants are industrious, intelligent, and enterprising; whose climate is agreeably diversified by a gradation of temperature; and whose river-banks are covered with fine forests of valuable timber, furnishing the finest commercial and mechanical timber in the world, must have as her chief resource, commerce, both domestic and foreign; build our own ships, manufacture our own material, and ship it in the manufactured article in our own ships. In order to do this we must protect our forests, not alone for the sake of the timber, but for the distribution of the rain-fall and the equalizing of the opposite forces of nature. Either reason for the protection of forests is of the utmost importance to us of the present generation, and to those that follow.

The denudation of the Sierras in the past ten years is now having its effect throughout the Pacific coast. Already one great change has occurred that is evident to the most casual observer, which is the speedy melting away of the snow on the mountains. It now goes off at once, in a flood, with the first warm weather of spring, whereas, formerly, being shaded and protected by the forests, it melted slowly, and all summer sent down to the valleys on both sides constant streams of cool, delicious water. Instead of a good stage of water in the streams throughout the summer, as in former times, there is a flood in the spring, and when this is over, the rivers run down; being no longer fed from the mountains, evaporation leaves their bed dry when the hot weather of summer comes on. The mountains being stripped of their trees, there is nothing to shade the rocks and earth, and both absorb a sufficient amount of heat from the sun during the fall, and even until far in the winter, to melt any light fall of snow that might occur. The result is, that the autumn weather will reach farther into the winter, until at last there will be no winter worthy of the name.

We believe that a more extensive circulation of forestry and timber literature, with a more vivid portrayal of the consequences of sweeping the forests all away, and the great good that would result from a proper distribution of forests and vegetation, would do great good. We have in this country thousands of men of good sense who have probably never thought of the subject; but it is a matter of the utmost importance to all, for every thing depends upon it. We often note and remark the change of climate from season to season, and if our forests continue to disappear as rapidly as they are now doing, we must note more radical and sudden changes than we have dreamed of.—*Lumberman's Gazette.*

GERARD & TURNBULL'S HYDRAULIC FIRE ESCAPE AND EXTINGUISHER.

This apparatus consists of a hollow metallic column, supported on a four-wheeled truck and bearing on the top a platform capable of holding six men. The column, which is made of iron or brass, is composed of several sections arranged to telescope successively into one another, when the platform is lowered. The column is hung upon a universal joint above its center of gravity, both to allow of its being kept constantly vertical

and to admit of its being swung into a horizontal position for greater ease in transportation. At the top of the column and in the middle of the platform is placed a double hydrant, connected, by means of inside telescopic tubes, with the water supply at the base, and capable of throwing two full-sized streams when the column is elevated.

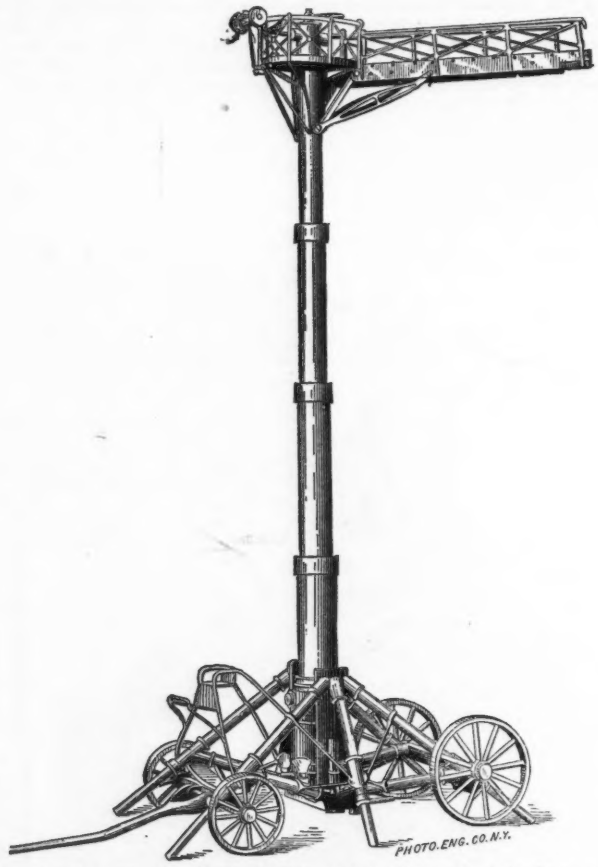
The force to be used in elevating the platform and column is simply water, under a pressure of forty pounds or more to the square inch, such as can readily be obtained from most city hydrants, and can always be had from a fire steamer. The platform descends by the force of gravity. The elevating and lowering of the platform and the turning on and off of the platform hydrant are all managed by the use of a single lever at the top of the hydrant. The bridge is operated by a windlass at the platform and constructed to reverse either as a bridge or a stairs, and pivoted so that it can be swung either to a horizontal or a vertical position. The truck is constructed of tubing with telescoping braces, and provided with an hydraulic pump to raise or lower the column to a horizontal or vertical position and to increase the pressure in the main column if required. The truck braces are provided with clamping collars for safety, and also provided with inlet and outlet valves.

All of the parts of the machine are metallic, and all exposed parts are hollow, to allow the free circulation of water to protect them from the effects of both heat and cold.

A standard machine for ordinary use has the following proportions:

Number of sections, 4.

Diameter of successive telescopic sections, 9, 8, 7, and 6 inches, respectively.



Diameter of successive inside tubes, 2½, 3, 3½, and 4 inches, respectively.

Length of sections, about 16 feet.

Thickness of the metal of the cylinder, ¼ inch.

Length of lap of 2d, 3d, and 4th sections, 4 feet each.

Height of platform above the ground, when the column is elevated, 56 feet; when the column is lowered, 18 feet. Height of highest point of apparatus above the ground, when the column is swung into horizontal position, 7 feet.

Length of truck from center to center of wheels, 15 feet.

Breadth of truck, 7 feet.

Such a machine as the above is capable of supporting fifteen tons at the full height, and can be raised and lowered with an ordinary load of one thousand pounds in less than forty seconds, or about one hundred times per hour. This apparatus is intended as a fire-escape to serve, with vastly increased efficiency, many, if not all of the purposes now answered by simple ladders and other more dangerous apparatus. As a fire-extinguisher the elevated double hydrant and platform, and the wide range which a fireman at the top of the platform commands, together with the rapidity and ease with which the whole can be worked, afford facilities for throwing water upon and into a burning building far superior to any other plan yet devised. By the method now in common use, from five to ten minutes must pass after a hook and ladder truck has reached a fire, before the right ladder can be unloaded, placed, and raised, and a line of hose carried up to the third or fourth story window. With this apparatus, the column can be swung into place, the platform raised to any desired height within the range of the machine, and two full-sized streams made to play from the top in from one to three minutes after the truck has reached its position. Add to this that the apparatus can be kept in operation before a burning building long after all ladders would have to be removed, and we have qualities which commend this apparatus as a most important and invaluable ally of that triumph of modern mechanism, the fire-steamer, in its work of saving life and extinguishing fires.

For further particulars address John Gerard, Trenton, N. J., or Andrew Turnbull, New Britain, Conn.—*Polytechnic Review.*

Homogeneous Cast Steel.—The discussions of Gautier and Euverte, upon the influence of silicium in iron have led to a special investigation by F. Osann, who finds that a very small quantity of silicium offers the best protection against the undue oxidation of the carbon, and the consequent undesirable production of gas and blisters, which interfere with the solidity and homogeneity of steel.—*Zeits. des Ver. Deutsch. Ing.*

THE PROJECTED DRAINING OF THE ZUYDER-ZEE.

(*Concluded from page* 133.)

C. Works relating to the draining in particular.

1. The cut-off dike *A A* (map), 40 kilometers long, on a level of —1 meter A. P. (official water-mark), at least 40 meters wide; base of —3·25 to 3·5 meters A. P.; outer escarpment or offset 5 meters wide, outer slope 1 : 4, inner slope 1 : 2½ to 1 : 5; inner escarpment arranged for a double-track railway; width of crown 3m, at a height of + 5 meters A. P. The earth composing the bottom of the dike is to be obtained from the Campen-Huyzen Canal or through dredging, and the outer surfaces to be covered with a coating of strong clay to a thickness of 1 meter. The filling-in is to be accomplished among fascines of 12 meters nether width, to be sunk under the offsets by means of sink-weights; the slopes and offsets to be primarily protected against wave abrasion by flaggings. At the end of each building season the ends of the dike must be protected by means of stone heap coverings.

2. To relieve the dike, a basin canal is projected along its length, of a width of 150 meters, with two large basins (*H* and *I*) at Enkhuyzen and Urk. By these means the pressure of the waters during storm-floods is to be moderated from 7·8 meters to 3·2 meters, which appeared to be an imperative requirement to the security of the future inhabitants.

3. A basin canal (*K K*), also 150 meters wide, which should constitute an extension of the North Sea Canal, so that the Oranien sluices built in the cut-off dike of the Y, near Amsterdam, might, as a rule, be left open. This canal would accordingly constitute the principal water-way from Amsterdam toward the north, requiring to this end a large outer and inner harbor to be constructed at De Ven.

4. The basin canals (*L M* and *L N*), 70 to 100 meters wide, which should join the above-mentioned canal near Amsterdam, besides the side canal *N O*, of 70 meters width.

5. Three canals (*P*, *Q*, and *R R*), branching from the principal canal referred to above (3), each of 70 meters width.

All these basin-canals to be bounded by dikes, lying on 0·5 meter A. P., the inner offsets being + 1·5 meters A. P. The dikes are to have two tow-paths of 5 meters width, the 6-meter-wide escarpments, moreover, to serve as roadways.

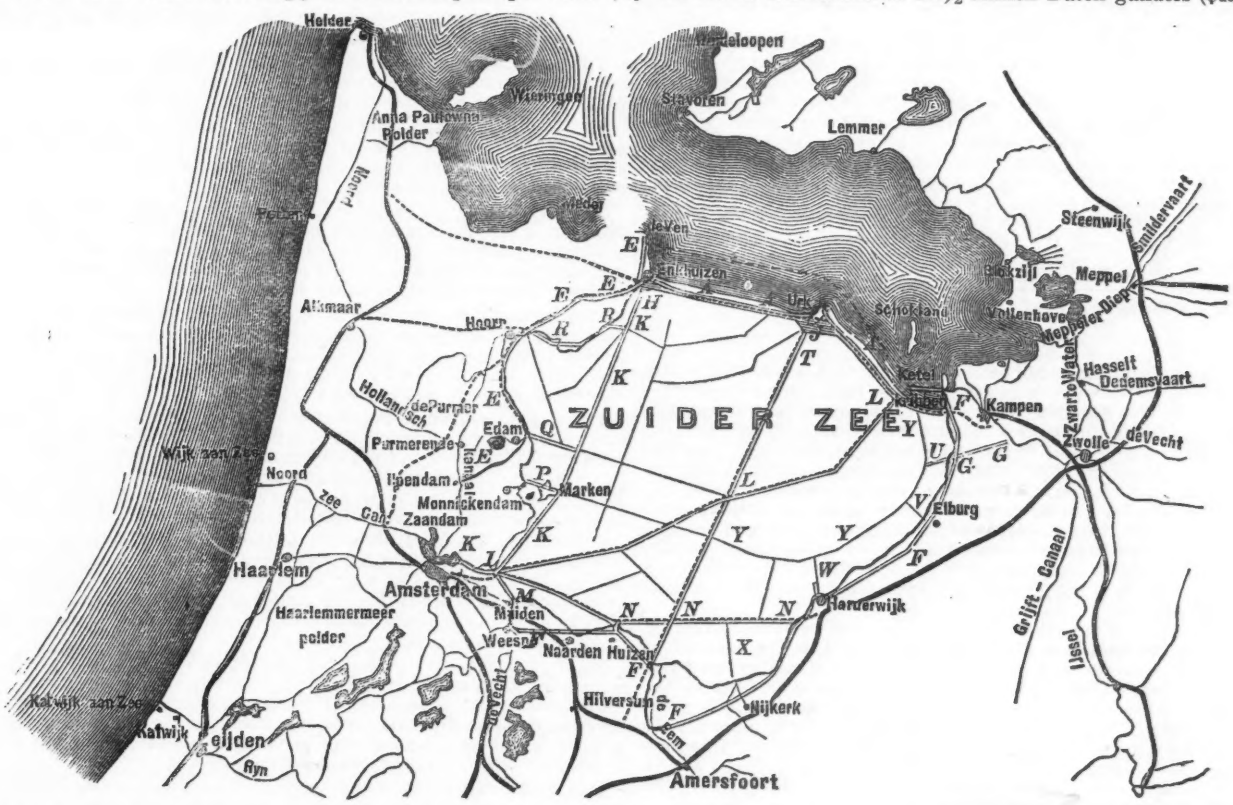
Besides the North Sea Canal, the embracing canals (*E E* and *F F*) belong, after the completion of the work, to the general basin, that is, to that water-level which has a natural discharge, and which is to take up the drainage waters lifted by the pumping engines. The surface level of this general basin is to be —0·4 meter A. P., and will comprise 7300 hectares, or $\frac{1}{25{\cdot}7}$ of the entire surface to be drained. In the older bottoms, that is, those of the Amstelland, Rijnland, the Schermerboezen, and the Y, this proportion is $\frac{1}{29{\cdot}6}$

6. A canal (*L L*), with its water-mark —4·0 meters, for a direct connection of the provinces of Overissel and Drenthe with Amsterdam; cut off from the general basin by chamber sluices.

7. A straight waterway, *N*, *L*, *T*, with three divisions lying respectively on —3·0m, —4·0m, and —5·0 meters A. P.

8. A number of subordinate canals, *U*, *V*, *W*, *X*, *Y*, for purposes of navigation and drainage.

9. Two canals through the island of Urk, the one 25 meters wide, with a chamber-lock of eight meters width, the other 100 meters wide, with five sluices of 10 meters width. On the north side of the island two moles are to be built down to 2·5 meters below low-water mark, to afford roomy shipping facilities.



and, inclusive of interest on outlays previous to availability, at 179 million florins; the time requisite to complete the work being 16 years. The completion of the dike is expected to take 8 years, so as to lessen the cost of the material with which the fascines are to be filled; and, furthermore, the pumping out is calculated to require 1¾ years.

To facilitate the raising of so large a sum of money, the following means have been proposed:

Free acquittance of all claims by the state or other parties to the land which the draining is to reclaim, and to the additions thereto that may result in consequence outside of the dike.

Payment of a subsidy for every hectare in cultivation, in view of the increased revenues accruing to the state in consequence of the addition of a new and fertile province thus to be gained.

The state had already, in a similar manner, supported the enterprise of draining the Haarlem Sea. The cost of this undertaking was 13·8 millions of guilders, and the result was marketed for 9·4 millions, the balance being furnished by the state, which thus paid, on 17,500 hectares, 250 guilders per hectare as subsidy.

If a like amount of subsidy were to be determined on with reference to the draining of the Zuyder-Zee, the contracting association would be required to raise only 766½ florins per hectare, out of an estimated cost per H. of 1016 florins. It is true that the lands reclaimed in draining the Haarlem Sea brought only 473 florins per H.; but these lands were devoid of the fertile stratum of alluvial deposit, and the value of lands, moreover, has greatly advanced during the past twenty years; thus the tracts of the Wijker Sea, near Amsterdam, were sold at an average of 2173½ florins.

Several members of the commission were furthermore of the opinion that the state was properly to bear the cost of such portions of the work as were to subserve general purposes, such as the dike itself and the larger canals, together with appurtenances.

With reference to the matters of the defense of the country and the sanitary interests of the people, opinions were generally favorable to the

project, although in regard to the latter subject, a certain degree of danger, during the drying period, was not to be ignored.

On the contrary, again, the completion of the mighty undertaking would bring with it the following inestimable advantages:

1. The enrichment of the country by a fruitful territory in which flourishing cities and hamlets would soon be developed; in consequence of this, the increase of industry and commerce in all the neighboring provinces.

2. Material improvement of the commercial highways to Amsterdam, between which and all the Basin provinces no sluices would longer be required.

3. A very desirable perfecting of the network of railways.

4. Considerable improvement of the discharge of the Rijnland and the Amstelland, as well as of Nordholland, in consequence of the increased outflow.

As against other smaller drainings, that of the Zuyder-Zee has the advantage that the surrounding dike and embracing canal, which generally go so far toward making up the cost of such undertakings, would here be confined to merely a cut-off dike of comparatively small dimensions.

The opponents of the project define the following objections:

1. The flood-tides on the eastern coast of the Zuyder-Zee, so far as it extends northward of the annexing dike, would in the future, during north and northwest storms, rise far higher than hitherto, and thereby destroy the existing dikes.

2. That in the sandy northern portion of the new bottom, extensive and serious percolations of water would ensue.

3. That the area of the new bottom would be too large to admit of its being readily marketed at an adequate price.

These objections may, however, be essentially removed by strengthening and increasing the height of the affected dikes, by leaving out the sandy portions of the bottom by means of a turn in the cut-off dike, and by extending the sale of the reclaimed lands. It remains, indeed, somewhat a matter of doubt whether the completion of the undertaking at the present time would prove remunerative. At all events, sufficient factors are at hand to justify a closer consideration of the project, and room may well be given to the hope that it may at some time be carried out. We may in the mean time find reassurance in the fact that between the suggestion and the completion of such undertakings in Holland many years have often intervened, but that in the end they were successfully accomplished.—*L., in the Polytechnic Review.*

ECONOMY IN THE USE OF CHEAP FUEL.

By P. Barnes, New York.

Cheap fuel, whether it be hard coal, soft coal, or coke, is as well worth saving, in every possible way, as any high-priced fuel, though in part for different reasons. One reason is, that a good thing of this kind ought to be made the most of, and if the cost per ton be low, then by so much the more the number of tons used ought to be the least possible. Another reason is, that the cheaper coals are sometimes lower in price merely because they are lean, containing more ash or earthy matter. Hence this class of fuel must be burned in proportionately larger quantities to give the required result, and thus the labor of firing, of cleaning the fires, and of hauling away the ashes is increased, sometimes to a surprising degree. This phase of the question of the cost of labor of firing, especially on a large battery of boilers, is not always fully appreciated, and is sometimes lost sight of altogether.

Some of the cheaper soft coals are found to be very gaseous or smoky, as, indeed, are some of the better ones, too; but the less the amount of useful combustible in the cheaper coal, the greater should be the pains taken to burn it correctly; in such a way as at once to prevent smoke, and also, what is more important, to insure the full benefit of this great body of gas, driven off at comparatively low temperatures immediately after the fresh fuel is thrown on the fire. Thus an important saving may be effected in preventing the sooting up of the heating surfaces, but an even more important result follows from the complete utilization of the gas, that is, from the *complete combustion.*

On this last topic of combustion scores of things have been written and said, and a legion of contrivances have been devised to promote it. The really essential things, however, that need to be known by the user of a cheap, smoky fuel are hardly more than two in number, and indeed than only one, and that is simply that there must be *ample room in the fire-box* or furnace *close over the fire.* With an ordinary cylindrical boiler, this space between the fire-grate and the under side of the boiler should be about five feet, instead of eighteen inches or two feet, which is the usual distance. This gives space, and hence time, for the gases evolved from the coal to whirl around and to combine fully while they are close over the fire, and hence still hot enough to insure their combustion. This must be effected, if at all, while they are still at a "blazing" heat. This combination will very rarely occur after the gas gets away from the fire beneath the boiler, and never after it gets into the tubes or flues of the boiler.

The other thing worth knowing, by the user of smoky coal, is, that in some cases it may possibly be worth while to bring into the fire-box a very small additional supply of air, to aid in promoting a complete combustion. So many astonishing and absurd things have been said and done about this very matter, that it is somewhat difficult now to get men to listen at all, and least of all to the utterly simple facts or truth in the case. These facts are, that there can never be needed, in the ordinary condition of things, but a very trifling additional amount of air; and the other is, that it must be hot—blazing hot—when it meets the gas in the fire-box, in order to accomplish the best results, or, indeed, any result at all that shall be worth a sixpence a week.

Unless this flow of air is closely restricted and watched, it will infallibly be found that the fireman will allow the fire to expend itself in heating a very large amount of air instead of the water in the boiler. Unless, too, the air-supply thus restricted is heated *hot*, it will be found, on close examination, that it is simply going along with the coal-gas under the boiler and into the flues, and that it may be found escaping into the chimney entirely uncombined, and hence doing no good whatever, but, on the contrary, an actual injury by the cooling effect it has produced.

The best way, and a very old way, to supply this air, when in rare cases it is needed at all, is to lead it over the fire through the front of the fire-box or furnace in a thin iron pipe, so that it shall be heated hot, to full redness if possible, and it should then be allowed to flow out through very small holes in the pipe over the hottest part of the fire, thus insuring the most intimate mixture with the coal-gas, and hence the best and only possible useful result. It will be urged that this pipe will burn out rapidly, and that it is much better to let the air in through the side walls or the bridge wall. To this it may be replied that any such contrivance as this air-pipe in the accomplishment of a useful result, will necessarily burn out, or become otherwise destroyed, and that it is only because of its exposure to absolute destruction that any useful purpose is served at all. If the air be led in through the walls, as has been done in many ways for generations past, it will be found to be but very slightly heated, and hence incapable of combining in the most effective way with the gas, even though it may be the means, to some extent, of reducing or preventing smoke. So far as the question of simple economy of fuel is concerned, the prevention of smoke is quite unimportant, and hence, the presence or the absence of smoke, in any given case, is an entirely uncertain indication of the excellence or the economy of the work done by the firemen or by the boilers.

This is an extremely worn and hackneyed topic, and one that many men turn away from at sight. It nevertheless lies close at or even beneath the foundation of real economy, and hence of success in manufacturing.

NOTES.

Metallic tungsten, chemically pure, is said to be manufactured at Hanover, and to be for sale at a low price.

The Japanese Government has authorized the construction of a line of railway between Kiôtô and Otsu, which is expected to cost about $1,250,000 and to consume three years in its completion.

The Engineers calculated the center of gravity of Cleopatra's Needle so nicely that when they got its iron jacket on and raised it by the trunnions, it balanced exactly, so that one man could cause the great mass of two hundred tons to swing.

Herr Reiniger, of Stuttgart, suggests that small towns may secure to themselves all the advantages of an illuminated tower clock, at but trifling expense, by employing the magic lantern to throw the image of a clock face and hands, highly magnified, upon a properly prepared surface, located in a conspicuous place.

The *Papier Ztg.* quotes Prof. Reuleaux as pointing out, in a recent discourse, the poor policy of giving contracts to the lowest bidder, by referring to the character of the paper employed in all public offices. This he asserts consists almost entirely of wood fiber, which can not reasonably be expected to last beyond ten years.

The latest edition of Behm and Wagner's *Bevölkerung der Erde* gives the present population of the earth at 1,439,000,000 as compared with 1,424,000,000 as given in the previous issue. These figures are based upon the most recent censuses taken in various countries. The population is divided as follows: Europe, 312,398,480; Asia, 831,000,000; Africa, 205,219,500; Australia and Polynesia, 4,411,300; America, 86,116,000.

Ship-Canal Project.—The bill authorizing the Barataria Ship-Canal Company to construct a canal from New Orleans to the Gulf of Mexico, and granting the right of way for that purpose, has become a law. The promoters of this enterprise are confident that, when this canal is completed, a new and advantageous way of exit to the gulf for all classes of ships will be opened.

On the Railroad connecting Reveil and Marly-le-Roi, France, it is said that the experiment of running the locomotives by means of superheated water has given very satisfactory results. The water was introduced at a temperature of 180° Centigrade. If the trial turned out as well as has been alleged, a motive power of this kind may, for many reasons, be adopted with advantage on street railroads.

The Microphone applied to the Human Body.—After the invention of the microphone, it was natural to think of applying it to detect obscure sounds in the human body. M. Du Moncel announced, at a recent meeting of the Paris Academy, that the problem has been solved by M. Ducretet, who employs in his "stethoscopic microphone" the very sensitive tambours of M. Marey. The only drawback to the apparatus is, that it is rather too delicate in its action, and transmits to the ear a host of sounds whose existence was not suspected, and the causes of which need investigation.—*Engl. Mechanic.*

A New Self-Generating Disinfectant, for use in civil and military hospitals, and which has been proposed by Dr. John Day, of Geelong, Australia, consists of one part of rectified oil of turpentine and seven parts of benzine, with the addition of five drops of oil of verbena to each ounce. Its efficacy is affirmed to depend upon the property possessed by each of its components of absorbing atmospheric oxygen and converting it either into hydrogen peroxide or ozone. It may be applied to articles of clothing, furniture, carpets, wall-paper, books, papers, letters, etc., without injury, and it is further affirmed that when it has once penetrated into any porous substance, its efficacy persists for an indefinite period.

A Practical Adoption of the Metric System.—The Boston and Providence R.R. have recently set granite posts along both sides of their road, indicating the distance to its termini. The posts are placed *two kilometers* apart. The distances are marked in kilometers, followed by other figures giving the equivalent miles and decimals, those indicating kilometers being the most conspicuous. The B. and P. R.R. are to be commended for their foresight in this matter. The stones are of a very permanent character, and will remain long after the kilometer has become the customary unit for measuring distance. It is to be hoped that this example will be followed throughout the country.—*Eng. News.*

The Mississippi Jetties.—In a late letter to a member of Congress, Captain Eads makes the following statements concerning the present condition of these great works of improvement:

"The jetty channel is now almost as good as the entrance to New York harbor. Larger ships and steamers visit the port of New Orleans than

ever before. Ocean freights have been so greatly lowered in consequence that the saving on cotton alone from the port of New Orleans, the past season, was over $1,600.000. Every intelligent man in Missouri knows that a revolution has been wrought in the grain trade as a result of this deep water. As the channel deepens, and commerce adapts itself to these new conditions, the benefits to the producers of Missouri will be still more extensively enjoyed. The permanent improvement of the mouth of the Mississippi operates as a regulator of transportation charges, and thus adds to the value of every bushel of grain grown for export to Europe, or for consumption in the Atlantic States, and it also cheapens to the farmer all of his merchandise and other supplies brought from the East."

OUR IRON MINES AND FURNACES.

The Lake Superior Region—The Marquette *Mining Journal* of the 24th inst. says, with reference to the future outlook of the iron market: "It is a fact that our mine owners may as well look squarely in the face—the district is producing too much ore. It is safe to assume that at least one half the furnaces which, in the flush times of 1871-3, were consumers of Lake Superior ores, are now out of blast, and likely to remain so until the long-expected revival of the iron trade takes place. Almost every mail brings us the news of additional failures of those engaged in some branch of the iron business, and those who have been able to weather the storm assert that they are not only not making any money, but that they do not know how soon they themselves may be compelled to join the innumerable caravan of bankrupts who have gone before. Looking at the situation in any and every light, the conclusion is forced upon us that recovery from the present depression will be slow and painful at the best. Should a revival come at all, it can not be expected that all the idle stacks in the country will be relighted in a day, or a week, or a year. * * *

"The mines in this county alone can turn out ore enough to make all the iron consumed in the United States, and now that the new mines of the Menominee range are assuming an importance that can not be overlooked, there is danger of a competition which can not prove otherwise than harmful, if not ruinous. The prospects for an increased demand and better prices are far from encouraging. The cost of mining has been reduced to the minimum, and yet our miners are making little if any profit. What, then, is to be done? * * *

"In view of all the facts, it must be apparent that there is very great danger of a competition among our miners which must work an injury to the general welfare of the district. It should be avoided by all means, and it can be. Mine owners and agents ought to be able to grapple with and overcome the danger with which their interests are threatened. They should lose no time in effecting such an organization as will enable them to act unitedly and in concert, on all matters pertaining to the welfare of the region, which is their own. We hope that the beginning of another year will not find mine owners so completely and voluntarily at the mercy of the furnacemen as they now are."

[If we (ENGINEERING AND MINING JOURNAL) might make a suggestion, it is that wages and cost of production, and profits, too, in some cases, be reduced, and ore put on the market at a price that will enable furnacemen to find a market for *their* product.]

"*Spiegel-Iron.*—The product of manganese ore, at the McComber mine, which will be somewhere between five and ten thousand tons the present season, has all been sold to the Johnstown, Pa., works, where it is made into spiegel-iron and used for Bessemer steel purposes. We also hear it stated (how reliable the authority is we do not know) that the lessees of the Menominee furnace have made arrangements for a supply of the Negaunee manganese ores, and will make nothing but spiegel-iron. The show of ore at the new mine being opened by the Manganese Iron Company is said to be most excellent, and it is probable that enough of that kind of ore can be obtained to keep at least two of our local furnaces in steady operation. Spiegel-iron commands a price in the market which will leave handsome margins to the makers, since the furnace cost, exclusive of a small advance in the price paid for the ore, will not exceed that of the common grades of iron."

The Iron Trade of Cleveland, Ohio.—The Philadelphia *North American* says: "Cleveland is losing the Lake Superior iron ore trade, the shipments from the mines having been drawn by new means of transportation to other towns and cities that before received but little and sometimes none. Columbus takes a very large share of coal (80 per cent), and Toledo, by means of the railroads through Columbus and Hocking Valley, has effectually cut off Cleveland from any market for coal west of that line of rail. The coal trade of Cleveland has, in the aggregate, suffered 30 per cent during the last four or five years; while Toledo, Black River, Ashtabula, and Painesville have either built up an entirely new trade or enlarged their beginnings, until they now handle yearly a million and a half tons, against about 600,000 by Cleveland. The only remedy appears to be an increase of Cleveland's facilities for penetrating the coal fields of Ohio. Three dollars per ton is about the average rate obtained for hematite ores delivered on the Cleveland docks."

Furnaces in Ohio.—The Ironton *Journal* says: "Out of the nineteen furnaces in Jackson County but seven are in operation. Of the seven furnaces in the town of Jackson, but one is running, and the owners recently sold 420 tons of pig-iron to be delivered at Cincinnati, at $14.25, which nets them but a trifle more than $12 per ton. Mr. Walls, State Commissioner of Labor Statistics, states as a result of his observations during a week's visit in Jackson County, that furnacemen and ore-diggers get one dollar a day nominally for their labor, but as this in scrip payable in goods at the companies' stores, the average pay is but from sixty to seventy cents a day."

"The Etna Iron Works, of Ironton, are confident now of getting a settlement with their creditors, over eighty per cent of the indebtedness having agreed to accept the proposition of the company. The works are among the largest and finest in the United States, and had only got fairly started when the panic struck them, and they were rendered unable to pay off. It is believed that when the settlement is effected, the works will be enabled to start again and give employment to hundreds of needy men formerly in their service, and who look anxiously forward to the consummation of the desired compromise."

The Bellaire (O.) nail works have declared a dividend of 3 per cent out of the earnings of the last six months.

Of the thirteen furnaces and three rolling mills in the Columbia Region, Pa., only five furnaces and the Susquehanna rolling mill are in operation.

The Gautier Steel Company, of Johnstown, Pa., is to increase the capacity of its wire mill from thirty to sixty tons per day. On the first of September the company will start its steel and carriage-spring works, the capacity of which is fifty tons per day.

The Dunbar (Pa.) Furnace is making seventy-five tons of metal per day, on less than seventy bushels of fuel (coke) per ton of metal.

The Cambria Iron Works are so crowded with orders that they will not accept more for delivery prior to May next.

The Norton Iron-Works Furnace, Ashland, Ky., is making from 60 to 65 tons of good iron per day and working well. It is rumored that the forge and plate mill and nail factory will soon resume operations.

Iron-Making in Oregon.—We take the following from the Pittsburg *Telegraph*: "A correspondent writing from Oswego, Oregon, says the Oswego furnace owned by the Oswego Iron Company, is now in full blast. The company is receiving nine 200-bushel loads of charcoal per day, hauled by two four-horse teams. Good coal-drawers are the scarcest men to find in Oregon.

"The company is receiving from one ore mine 60 tons of ore per day, mined by ten men and hauled by seven two-horse teams. The ore vein descends into the hill at an angle of 25 degrees, and is now 12 feet thick in the entry, 275 feet from the mouth. An engine is used to draw the ore-cars up. The ore is dumped into chutes, and the wagons drive under and let the ore run in. The mine is 2¼ miles from the furnace, all down grade, and two horses haul from 2 to 2½ tons per load at 50 cents a ton, making four loads per day. The ore is pounded by Chinamen—Ling Bong, Ling Chow, and Ah Gin—and used in the furnaces as it comes from the mine. The furnace is making 9 tons per day of No. 1 hot-blast iron, which is sold by the company on its landing at $28 per ton. It is proposed soon to try cold-blast iron."

This is the only iron-smelting furnace now in operation west of the Rocky Mountains. It is located about seven miles south of Portland, in the Willamette Valley. The furnace was built in 1867, and the first shipment of ore was made in May, 1868. The mines were worked for two years, but, owing to some misunderstanding about the water rights and other reasons, the enterprise was for the time abandoned. In 1874 work on the mines was resumed. The price of iron was then very high, but two years later the market became overstocked, prices fell nearly one half, and the mines were again abandoned. In the spring of 1878 parties took possession, with the intention to make a fair trial of the practicability of working the mines and furnaces. The one disadvantage about the location of the ore-beds is the absence of fluxes. Limestone has to be obtained from Arcas Island, in Puget Sound. This drawback, however, is partially compensated by other circumstances most needful for successfully producing iron. There is ample water-power and an abundance of wood for making charcoal. The freight rates from the furnace to San Francisco are about three dollars and a half per ton, which is said to leave a fair margin for profit, even at the present low prices for iron.

The freight on iron ore from the Mediterranean to Philadelphia is ten shillings per ton.

MINING NEWS.

COLORADO.

Special Correspondence of the Engineering and Mining Journal.

CLEAR CREEK COUNTY.

Probably the largest amount of ore ever shipped by one firm from Georgetown during the first six months of any year is that of Matthews, Morris & Co. for the first half of 1878. It embraced 1,675,073 pounds (over 800 tons) gross, containing 195,659 ounces of silver, 32·38 ounces of gold, and 84,381 pounds of lead—coin value of all, $232,100.76. There was the unusually high average of 241 ounces of silver per ton.

Leavenworth Mountain, immediately above Georgetown, shows a great deal of activity this season. Several of the valuable veins of the Marshall S. M. and Tunnel Company are paying well. The lower workings of the S. J. Tilden are yielding finely. Six parties lease from the company on different parts of this vein, comprising a total working force of nearly 25 men. The Colorado Central is worked to a depth of 240 feet. Two parties are leasing. The ore runs from 300 to 900 ounces of silver per ton. Near by, the Equator lode is producing some very rich mineral. The last mill run netted the owners $2719 for 4½ tons, and third-class ore brought $280 per ton. There are four different leasing parties working at depths of from 300 to 400 feet. The Thompson, Rocky Mountain, and Pulaski tunnels are being driven forward. The latter is 1100 feet long, and will soon cut the great Pulaski gold and siver vein. The Silver Dale tunnel has attained a length of 500 feet. The Kirtley lode continues to produce a great deal of ore yielding from 70 to 700 ounces in silver. This vein was discovered by the Kirtley tunnel late in 1877, and has been the best-paying and most productive mine on the mountain since that time. Fifteen men are at work. Among other lodes worked on Leavenworth are the Alpha, O. K., Indigo, Brannigan, Buckeye, Omega, and Gilpin.

On Demorest Mountain the William B. Astor, Rogers, and other lodes are worked. Near Empire, the Pioneer lode is paying a profit of about $75 per day. The new mill of 16 stamps returns about $200 per cord of ore, mainly in gold with some silver.

The two great mines of the eastern part of Clear Creek County are the Freeland and Hukill. The excellent record of the latter is pretty well known. The former is steadily being brought into condition for a very large production by its proprietor, John M. Dumont, who for years owned and operated the Hukill. He has about 75 men at work at present—most of them engaged in running four levels, varying in length from 300 to nearly 1000 feet. This work of development on the Freeland has created quite a town up Trail Run. Thousands of tons of ore have been taken out, much of which is being roasted in heaps for desulphurization.

The Hukill Mining Company, Mr. Delano, Superintendent, has about 75 men at work. Most of these are engaged in the levels of the Hukill and Whale. These mines are situated on the steep mountains on either side of South Clear Creek, and are considered one vein. Between them is the great Whale mill building. In one end of this the new Collom wet concentrating works are in operation, with a pile of over 1000 tons of low-grade ore at hand, and more coming over the iron railway track running from the main Hukill drift over a bridge and into the mill.

These concentrating works are operated by water-power, of which the creek affords a plentiful supply, and require but three men on a shift, or six altogether. The ore, after being sampled and rolled, is sampled automatically, and separated in three sizes in passing through revolving screens. Other sizing machines convert the ore into six sizes, and each class passes on to its appropriate jig. The clean ore is made in the upper jigs and the sand is washed on to the next lower set. Elevators take up the latter product to a set of sand rolls, after which it goes through a screening and jigging process similar to that already described. Rittinger tables handle the slimes. The capacity of the entire concern is one ton of ore per hour. This mill is superior to most others on account of the simplicity of its machinery, less of which is used than elsewhere—also in several improvements in sizing, jigging, etc., the invention of the Superintendent, Mr. Charles Collom. He has dispensed with much of the complex workings of similar works, using what was called the Collom process. It is believed no other dressing concern in the State can do better or more economical work than this. Last week 116 tons of Freeland ore were dressed down to a fine marketable material of less than one third of that bulk. The Hukill mine will hereafter furnish all of the ore needed to keep the mill busy, besides a large amount of high-grade ore. The lower grades contain from thirty to forty dollars' worth of silver, gold, and copper, and it is believed that from six to eight tons can be put into one.

The Miles concentrating mill at Idaho has derived its main supply from the Hukill, but will hereafter depend on general custom ore. The Sunshine quartz mill at Idaho is running its 25 stamps mainly on Specie Payment ore, the mine and mill being owned by the same company. The yield is from $100 to $200 per cord. About 150 men are engaged in creek, bar, and gulch mining near Idaho, Spanish Bar, Fall River, and below. More lode mining is going on than ever before. The mines of Seaton Hill, Virginia Cañon, Clear Creek, and vicinity are generally doing well.

GILPIN COUNTY.

Of the mines in Gilpin County the Bobtail employs 95 stamps, the Briggs-Gregory 50, the N. Y. and C.-Gregory 40, the Kansas an average of 60, the Hidden Treasure mine on the California-Indiana 45 stamps, and

the Kent County 37. Each stamp crushes about three fourths of a ton daily, except in the double issue mill of the Briggs, where the average is a ton to the stamp. Besides the above, each of the above mines sells from one to four tons of ore daily to the smelters, assaying from $100 to $200 per ton, and most of these mines have parties of tributers at work who produce considerable amounts of milling ore. The ore crushed in the stamp mills usually yields from three to six ounces of gold to the cord, or from $8 to $16 per ton. The Jones, Hidden Treasure, Pyrenees, California, Mercer County, and some others go much higher. All of these, except the Pyrenees, have been idle for long periods up to the last year or to within a few months. The Saratoga mine is another old vein that has resumed production within the present year.

The Mercer County, considered to be identical with the Flack, is owned by Mr. Jaques, of New York. It had been idle for eight or nine years up to this summer although it had once paid largely. A new building and steam hoisting works were put up and the mine freed of water. The shaft was 450 feet deep. The mine was not "in cap," and ten stamps have lately been employed in crushing the ore, which is very rich—probably double the value of the average of most mines. As work progresses, the product will undoubtedly become larger.

The new silver district north of Black Hawk, between North Clear Creek and the Dory Hill road, is still attracting attention. More discoveries are reported, and some of the earlier ones are improving in appearance. The ore is sold at the Black Hawk smelting works. Further west, and near timber line, the Fremont and Forrester lodes are being developed, with fine prospects. The Williams gold and silver lode in Lake Gulch still turns out several thousand dollars per month. The lower grades are treated in stamp mills or concentrated in dressing works, and the richer ores go to the smelter. Three or four parties of lessees are at work on the once productive Perigo lode in the northern part of the county.

BOULDER COUNTY.

The New Jersey Silver Mill at Caribou has been in operation nearly all summer under J. T. Graham. It purchases custom ores and makes regular shipments of silver. Eben Smith runs the Caribou silver mill at Nederland, as usual, on ore from the Caribou mine. One or two gold quartz mills are at work near Nederland. Dry concentrators are being placed in the Washington Avenue mill for handling ore from the silver mine of the same name six miles north of Caribou and Nederland. This silver mill has been at work occasionally this year.

The gold-bearing quartz lodes of Ward district, and of Springdale and James Creek, are keeping many stamps in motion, and sell some of their richer ores to the smelter. The Celestial, Columbia, Stoughton, and Golden Age are among the number. The Triune mine, at Salina, is selling ore at Boulder. The Atchison Company is putting a reverberatory furnace in its mill. Hunt's works, at the mouth of Four Mile, are nearly ready for work. The Melvina, Slide, John Jay, and Smuggler are producing the usual amount of tellurides. Less mining than usual is going on at Sunshine.

LAKE COUNTY.

The carbonate mines around Leadville are yielding more than in the earlier part of the summer. The regular producers are the Iron, Dana, Argentine or Camp Bird cluster, the Crescent, Carbonate, New Discovery, and Little Pittsburg. There are a dozen other properties that are turning out ore at intervals, or in smaller quantities, and more of rather low grade for present circumstances. Some rich discoveries are reported west of the Arkansas, nearly twenty miles southwest of Leadville. These are near the Twin Lakes. One is said to be very rich in gold. Carbonates have been found on the eastern slope of the Mosquito Range, southeast of Leadville.

CUSTER COUNTY.

The Maine or Bassick mine, near Rosita, continues to turn out $50,000, or thereabouts, per month. The Pocahontas was started up under the management of George C. Munson last June, and will undoubtedly soon be doing as well as in former days. Mr. Thornton is making money on the Humboldt lode on the same vein. The Leavenworth and some other mines are being worked.

FREMONT COUNTY.

The oil well of Cassidy, Canfield & Slater, near Cañon City is down 460 feet, with a change of rock, which indicates the near approach of oil. Quite a quantity was obtained from and near the surface several years ago.

CLEAR CREEK.

The Baxter mine, on Republican Mountain, near Georgetown, has produced over $150,000 since its discovery, one third of which was profit. About $45,000 worth of ore will be mined this year.

COIN.

Special Correspondence of the Engineering and Mining Journal.

MONTEZUMA.

The first important mining camp over the range from Georgetown is Montezuma. The village looks new and neat; nothing dilapitated about it. Its inhabitants are full of hope that the mineral resources around will henceforth be utilized to greater advantage.

Two prominent companies, the St. John and the Montezuma Silver Mining Co., have agreed upon completing a new route to the South Park Railroad, which will reduce the freight per ton to $10 or $8.

In the St. John mine I have seen the largest development of lead ore in Colorado. I may see larger. The tunnel measures 1700 feet, with about 7000 feet of drifts. There are three levels 110 feet apart from each other, with a pay-streak of from 4 to 12 inches. The farther into the mountain the drifts extend, the more regular is the pay-streak, containing about one half galena, the balance of a more argentiferous character, gray copper, quartz, and spar; also some ruby and brittle silver. With the lead runs about one twentieth of zinc-blende. About 40 men have been at work under Captain Ware the last five months, and several thousand tons of ore are awaiting treatment. Prof. Fohr is preparing for recommencing smelting operations within a week, and several hundred tons of bullion will come to market this year from St. John, if every thing runs smoothly. The bulk of the ore in the mine is of low grade. The same may be said of numerous other mines and prospects in the vicinity. The pay-streaks are large throughout, and, with the exception of the best Gilpin gold mines, more continuous than the average other mines east of the range.

There are large bodies of galena here that should not be treated as argentiferous. With the establishment of better and cheaper roads, the Montezuma district may become a constant shipper of pig-lead. Still, there are some very good silver mines.

THE CASHIER.

I climbed the Teller Mountain to examine the Cashier mine, about 500 feet below the summit of the range. The gangue averages 20 inches, and consists of quartz, heavy spar, some galena, gray and carbonate of copper ores, the two latter running pretty regularly throughout the vein.

From returns of the Boston and Colorado smelting works, I estimate the average grade to run 200 ounces in silver, and 7 in copper.

If this mine were more accessible, or on the other side of the range, it would rank as A No. 1.

Another part of the same vein is called the *Champion*, operated by a company of the same name. The developments are limited as yet, but energetic work is done under Mr. Stephan, the Superintendent, toward making connection with the Cashier.

The *Washington*, *Atlantic*, and *Central* are worked on the Collins Mountain. The *Radical* is being pushed on the Teller by the Montezuma Company. The Chataqua, on the Glazier, is operated by the same parties.

The Bell mine yields a fair grade of silver ore, purchased by the St. John and others.

There are numerous other developments and prospects of more or less argentiferous lead and zinc ores awaiting economical treatment and transportation. Timber is plenty and cheap, for both building and smelting. I am indebted to Mr. M. Wolf and Prof. J. A. Jonley for information received. The professor is the best-posted man in Montezuma. He thinks Colorado has had too much of capital without brains, and of theory of science without practice.

I recommend to proprietors and all who mean business not to omit Montezuma in their visits to Colorado. The district will become a prominent one. Hotel accommodations are good.

B.

Special Correspondence of the Engineering and Mining Journal.

GILPIN COUNTY.

The *Cyclops* lode, in the new silver district north of Black Hawk, is paying well in localities. One party is taking out ore regularly. James Collins and N. A. Sears, who are leasing on another portion, have just had three assays made, which gave 840, 730, and 700 ounces of silver to the ton, respectively.

The *Cashier* keeps on improving at the bottom of the shaft. This is 230 feet deep. There is plenty of ore coming in sight, and several tons are raised daily. The last mill run gave the very fair return of 5½ ounces of gold per cord. The streaks of "iron" visible at the bottom are gradually uniting. The tunnel driven on the vein from the east is advancing rapidly, and is already over 130 feet long.

The *Bobtail* Company is taking out a little less gold than during the same time last year, but is still the largest producer in the county. There are no signs of the ore bodies giving out. The last three weeks' runs by the two mills and 95 stamps of this company gave retorts worth $4500, $5600, and $4700, respectively. The present week will show equally well. Besides the above, the smelting ore netted several thousand dollars during the month.

Lafrenz and Tahler have new and powerful machinery at work on their 700-foot shaft, just east of the Cons. Bobtail. They are sinking, and will soon be as deep as their neighbors who work through the tunnel and then below. Further east on this vein Sullivan & Co. are drifting on the East Bobtail, starting from the 700-foot shaft just referred to.

The *La Crosse* tunnel has been driven some distance since work began. The header is reported only 40 feet distant from the Rhoderick Dhu. The *New York and Colorado* claim on the Gregory is yielding much the same as usual, with 40 stamps engaged in crushing ore.

No work is being done on the *Buckeye* property—so the agent says. This organization has accomplished but little, and there is no prospect of rapid development or of any production. The only thing that is yet considered of value by the public is the timber covering some of the lands of the company, and a doubtful stamp-mill of small size. The writer of this was in that locality last week, and saw no one at work.

During the first twenty days of August the mines and quartz mills of Gilpin County shipped through the three banks of Central $79,025 worth of gold retort. In the same time the Boston and Colorado smelting works forwarded $70,500 in silver bars.

CLEAR CREEK COUNTY.

Another point has been gained by the miners of Georgetown and vicinity in the way of making low-grade ores available. F. M. Taylor, of the Clear Creek Company dressing and reducing works, announces that he can hereafter pay something for all concentrating ores carrying over ten ounces in silver to the ton. This embraces all ores whose mineral is easily separated from the gangue. Under this new arrangement, a large amount of ore that has always been considered worthless will return money to the miners, and a great deal of material in the dump piles of leading mines will be worked over for pay.

The *Empire Ditch and Placer Company* is operating extensively on the southern slope of Silver Mountain, between Lyon gulch and Upper Empire. There are fifteen men at work, under charge of W. H. Jones, an old California miner. The company was organized last winter. T. G. Negus is President, R. S. Morrison, Secretary, and Frank M. Taylor, Treasurer. These are all prominent Georgetown men. Water is brought by ditch and flume a distance of three miles, from near the head of Mill Creek, until the little giant hydraulic is reached —690 feet up the mountain—giving a perpendicular fall of 300 feet into the gulch and a pressure at the giant of 130 pounds to the square inch. The first week's work washed down 25,000 cubic yards of earth. The main sluice in the gulch is 3 feet wide and 425 feet long, and has a fall of 10 inches in 12 feet. Blocks for riffles in the bottom of the boxes are made by sawing logs over 16 inches in diameter into 8-inch pieces. About 600 pounds of quicksilver are used in these sluices for one run of thirty days, the bulk of it being recovered at the clean-up as amalgam, and, after being retorted, is again ready for use. At the clean-up the water is reduced from 450 inches, the regular amount, to about 50 inches, and the blocks removed. The gravel and amalgam on the bottom of the boxes is then easily separated by the action of the water. After the sluice has been cleaned, the boxes are re-lined with new blocks, the water turned on for another thirty days' run, and the gravel and the dirt from the banks again begin to be washed into the boxes. The surface and gravel deposits of Empire and vicinity yielded about $2,000,000 worth of gold from 1860 to 1865 inclusive, and W. H. Russell, Charles Martin, and others made large fortunes there.

BOULDER COUNTY.

The *New Jersey Silver Mill* at Caribou, operated by J. T. Graham, shipped its usual silver bar on Saturday, valued at $1400. The Boulder County lode is turning out finely.

THE SAN JUAN COUNTRY.

The *Little Annie* mine and mill turns out $240 worth of gold retort per day. The *Dolly Varden* lode, near Lake City, recently turned out two tons and 700 pounds of ore that gave 474 ounces in silver per ton and one ton of second-class ore that milled 205 ounces. The *lixiviation works* at Lake, now owned by Mr. Ewing, are ready to begin work with 150 tons of ore from the Red Rover, Poughkeepsie, and Yankee Boy mines.

The *Prince of Wales* owners expect soon to have two or three tons of one thousand ounce ore at the Ocean Wave smelter. The *Czar* lode shows some very rich ore. The Maid of the Mist has sent a ton of ore to the Crooke smelter, which ran 225 ounces in silver. F. B. Beaudry has a vein at the bottom of the 104 ft. shaft on the Mountain Queen, showing fine gray copper, and giving a yield of from 80 to 200 ounces of silver per ton. He also operates the Yankee Boy, in the Sneffles district, and is getting out ruby silver ore, some of which is worth $3 per pound.

MISCELLANEOUS.

Some 240 men are employed in constructing the new smelting works of the Boston and Colorado Company near Denver. This settlement is to be called Argo. The old works at Black Hawk are doing the usual amount of business, viz., turning out about $200,000 worth of bullion monthly.

The Denver and Rio Grande Company has raised over half of the required $1,150,000 to extend its road from Alamosa, in Southern Colorado, down the Rio Grande to Albuquerque, New Mexico.

The Denver and South Park is now in operation as far as Bailey's ranch, 45 miles from Fairplay. This is a saving of 35 miles of staging. Leadville is now within 90 miles of railway.

The courts have decided that the concern or company backed or owned by the Atchison, Topeka, and Santa Fé line has the right of way through the "Royal Gorge" and Grand Cañon of the Arkansas, claimed by them, and over which

such a dangerous contest was inaugurated early in the summer. This does no prevent the Denver and Rio Grande Company from building their narrow-gauge line up the cañon, but it seems to give the broad-gauge proper the choice of route; that is, the line previously surveyed. It is expected the A., T. and S. F. line will be built as far as the head waters of the Arkansas and Leadville next summer. The work of grading is steadily going forwar l.

The Atchison, Topeka, and Santa Fé Company will have their line extended from La Junta southwest to Trinidad, and up through the Raton Pass over the Colorado and New Mexico boundary line by September 10th.

BLACK HILLS.

On the 17th four gold bricks were received at a Deadwood bank from the Homestake mine and 80-stamp mill at Lead City. These bricks contained 2281.71 ounces, worth over $40,000, the result of a two weeks' mill run. The Homestake was bought by California parties less than a year ago for $70,000, and the company incorporated with a capital of $10,000,000 in one hundred dollar shares. The selling price of the shares has increased from four to ten dollars each.

COIN.

WYOMING VALLEY MINING NEWS.

Special Correspondence of the Engineering and Mining Journal.

The mine of C. S. Maltby is about being put into operation, as they are experimenting on running the planes, and putting a little coal through the breaker to try the new machinery, etc. They have experienced some trouble for want of water, their first supply having given out. They have very fine improvements at this colliery. Among other things are two of the Murphy ventilators, to be put in, one at the new shaft and one at the tunnel on the mountain side.

It is now pretty certain that the Elmwold Colliery has passed into the possession of a new firm, Mr. Dickson, of the Dickson Manufacturing Co., having got the former leases of the same.

Most of the mines are through for this month, having put in their quota. The Delaware and Hudson Canal Co.'s mines are working on the Plymouth side, except No. 2, which is idle from breakage of machinery.

The mines of the Lehigh and Wilkes-Barre Coal Co., worked by C. Parrish & Co., are idle all around Wilkes-Barre except the Empire mines; they may run on for this week, when they also will be done for some time—at least it is reported that these mines are to remain idle until the latter part of September, when they will be started only in time to fill their quota for that month. The mines of the R. S. C. Co. and J. H. Swoyer are idle. However, it is rumored that some of them are to start up again on Wednesday, the 27th inst., to fill cars for the road.

The Lehigh Valley Coal Co.'s mines are all idle.

The mines of the Susquehanna Coal Co. are all idle since last Saturday.

The mines belonging to the Delaware and Hudson Coal Company on the Wilkes-Barre side, are idle, except those of Mill Creek and No. 3, Baltimore slope; they are working half or three quarters time.

The mines at and about Kingston are working only half time. "SQUIBB."

CALIFORNIA.

THE BODIE DISTRICT.

From the mining summary in the *Standard* of the 21st inst., we extract the foliowing: "The past week has brought many changes for the mining outlook of this district. There have been a number of new locations made and active operations resumed on claims which have been lying idle for months. Claims have been bonded to capitalists during the week, and many others are now talked of. The Bodie continues to yield her thousands, and the Standard is not far behind, and shows immense bodies of high-grade ore. Prospectors are in better spirits than ever before. From the Blackhawk on the north to the Sigourney on the south, the hills are fairly alive with miners, delving in the ground, full of hope in the belief that at last they are in a fair way to a 'raise.' Business seems to have taken a new departure, and merchants express themselves as well pleased with the prospects of the camp. The recent strike in Blackhawk has caused quite a stir among all who have a little money to spare, and the lucky holders of this stock consider themselves in the front rank. A gentleman refused $3 per share for 2000 shares Monday morning. The developments in the Sigourney are very satisfactory; the ledge has been traced for over 400 feet. The Richer bids fair to make a showing which will be a surprise to even those who have known it was rich for some time, and two months more of steady work will show conclusively that it is a very valuable property. In a great many of the smaller claims the indications are very favorable, and some of them have small ledges which prospect well. This camp is attracting considerable attention from the outside, as is attested by the constant arrivals of prominent mining men in our midst. All who examine the Bodie and Standard are struck with their wonderful richness and regularity of formation. Without doubt Bodie has the brightest prospect of any camp on the coast, and the amount of bullion shipped monthly will be greatly increased in a few months more, as soon as the new hoisting works and other machinery, now ordered for several mines, are erected and in good running order.

"In the stopes of the Bodie mine there is constant improvement, and the ledge is from 4 to 11 feet wide, and very fine ore. All this ore goes to the mill without sorting. The ore in the Burgess, both winze and upraise, is very high grade. The Syndicate mill is still running on ore from this mine, and the bullion yield is enormous. It is expected that half a million in bullion will have been shipped before the end of the month, over $400,000 having already been shipped. For the week ending the 20th inst. over 3000 shares of the stock of this company sold on the San Francisco stock market at from $37 to $47 per share.

"The Standard Mining Co. has erected magnificent hoisting works, probably equal in capacity to any on the coast, at a cost of $18,000, and a 20-stamp mill which stands them $86,000. The mill is connected with the mine by a tramway, and as a load of ore comes down, the empty buckets go up. The capacity of the mill is about 75 tons per day. Since this mill was started up, thirteen months since, $1,298,860.04 in bullion has been shipped, and the stockholders have received twelve dividends of $50,000 each. The average yield per ton for the past year from the mill was $61.68; of this $59 in gold and $2.68 in silver. The cost of milling per ton was $6.78."

ASSAY DEPARTMENT OF THE ENGINEERING AND MINING JOURNAL.

This department is opened for the benefit of miners, prospectors, and others interested in minerals.

Replies will be made in these columns, and *without charge*, to questions asked regarding the nature and commercial value of minerals, and of samples sent.

Assays determining the actual composition and value of ores will be made at the following rates. All assays are made with the utmost care by the most experienced and competent assayers:

Assay for Gold.....	$2 00	Assay for Copper.....	$2 00	Assay for Zinc.....	$3 00
" Silver.....	1 50	" Lead.....	1 50	Zinc Analyses.....	5 00
" Gold & silv'r	2 00				

The amount should invariably accompany the order, and expressage or postage must always be prepaid.

Communications, samples, etc., to be addressed to

ENGINEERING AND MINING JOURNAL, 27 Park Place, New York.
(P. O. Box 4404.)

ANSWERS.

CXCVI. Hulse Bros., South Durham.—Sample of ore contains silver 0·95 oz. per ton; gold, none.

STATISTICS OF COAL PRODUCTION.

This is the only Report published that gives full and accurate returns of the production of our Anthracite mines.

Comparative statement for the week ending August 24th, and years from January 1st:

TONS OF 2240 LBS.	1878.		1877.	
	Week.	Year.	Week.	Year.
Wyoming Region.				
D. & H. Canal Co..	32,717	1,296,912	.....	1,283,899
D. L. & W. RR. Co.	54,876	1,283,325	.....	1,306,199
Penn. Coal Co.....	22,304	506,423	15,677	682,163
L. V. RR. Co.....	16,535	506,505	2,664	588,646
P. & N. Y. RR. Co..	609	19,006	.....	32,931
C. RR. of N. J.....	31,793	597,803	254	868,101
Penn. Canal Co....	13,181	207,261	4,101	223,897
	172,015	4,417,235	22,696	4,985,836
Lehigh Region.				
L. V. RR. Co.....	48,066	1,532,874	52,216	1,906,314
C. RR. of N. J.....	27,838	817,892	4,318	913,555
D. H. & W. B. RR..	1,482	18,185	.....	11,886
	77,386	2,368,951	56,534	2,831,755
Schuylkill Region.				
P. & R. RR. Co.....	175,548	2,965,454	182,319	3,991,507
Shamokin & Lykens Val....	18,494	346,491	16,909	401,721
	194,042	3,311,945	199,228	4,393,228
Sullivan Region.				
Sul. & Erie RR. Co.	345	19,556	943	8,252
Total	443,788	10,117,687	279,401	12,219,071
Increase.....	164,387	.....	.....	.....
Decrease.....	.....	2,101,384	.....	.....

The above table does not include the amount of coal consumed and sold at the mines, which is about five per cent of the whole production.

Receipts of Coal at Boston, for the week ending August 23d and year from January 1st:

TONS OF 2240 LBS.	1878.		1877.	
	Week.	Year.	Week.	Year.
From Alexandria and Georgetown.....	.....	52,253	.....	40,564
Philadelphia.....	19,643	412,335	9,013	413,480
Baltimore.....	3,125	102,485	5,929	88,483
Other places.....	4,911	63,747	1,800	183,752
Great Britain	.....	15,411	103	1,456
Nova Scotia.....	430	10,361	883	18,047
Total.....	28,109	656,592	17,728	745,782

Receipts and shipments of coal at Chicago Ill., for the week ending August 24th, and year from January 1st:

	Week. Tons.	Year. Tons.
Receipts.....	41,922	1,020,830
Shipments.....	7,335	141,555

The Exports of Coal from Baltimore for the week ending August 23d were .... tons, and since January 1, 21,416 tons, as against 22,544 tons for the corresponding time in 1877.

The increase of shipments of Cumberland Coal over the Cumberland Branch, and Cumberland and Pennsylvania railroads amounts to 86,171 tons, as compared with the corresponding period in 1877.

Belvidere Delaware Railroad Report for week ending August 24th:

	Week.	Year. 1878.	Year. 1877.
Coal for shipment at Coal Port (Trenton).....	460	4,866	12,544
Coal for shipment at South Amboy	6,289	313,955	360,698
Coal for distribution.....	3,366	107,362	111,184
Coal for Company's use.....	1,635	50,403	44,759

The Production of Bituminous Coal for the week ending August 24th, was as follows:

Tons of 2000 lbs., unless otherwise designated.

	Week. Tons.	Year. Tons.
Cumberland Region, Md.		
Tons of 2,240 lb.....	44,469	945,969
Barclay Region, Pa.		
Barclay R. R., tons of 2,240 lbs.....	7,173	195,905
Broad Top Region, Pa.		
Huntingdon and Broad Top R. R.....	2,954	90,901
*East Broad Top.....	1,066	38,784
Clearfield Region, Pa.		
*Snow Shoe.....	316	15,162
*Tyrone and Clearfield.....	27,942	793,516
Allegheny Region, Pa.		
*Pennsylvania R. R	4,115	129,962
Pittsburg Region, Pa.		
*West Penn R. R.....	2,758	117,385
*Southwest Penn. R. R.....	419	16,736
*Penn & Westmoreland gas coal, Pa. R. R.....	10,283	424,259
*Pennsylvania R. R.....	6,209	249,854

*For the week ending August 21.

The Production of Coke for the week ending August 21:

Tons of 2000 lbs.	Week.	Year.
West Penn R. R.....	1,179	54,104
Southwest Penn. R. R.....	14,915	493,240
Penn. & Westmoreland Region, Pa. R. R.	1,488	47,078
Pittsburg, Penn. R. R.....	2,525	62,798
Total.....	20,107	657,216

COAL TRADE REVIEW.

NEW YORK, Friday Evening, Aug. 30, 1878.

Anthracite.

As we predicted in our last report, the auction sale of the 28th showed the receipt of somewhat higher prices for coal. These sales long ago ceased to be looked upon as representing the actual condition of the market, for it has been too evident that they were manipulated to suit other ends. Whether the last sale was "genuine" or not, it was currently stated after the sale that coal could be bought below the prices paid at it, and the Pennsylvania Coal Company issued circulars quoting prices to contractors at 12½@22½c. below the auction prices, while it is intimated by some parties in the trade that Pittston coal can be bought from second hand at less than contractor's circular rates.

The curtailment of production ordered for September is already producing some good effect, and were it not that prices have been advanced, and further advances threatened, the demand for manufacturing purposes would be quite large this autumn; for the general business of the country has long passed the turning point, and is even now quite good, though prices are low in every department. One would suppose that the startling facts of the production of anthracite having fallen off over 2,000,000 tons from that of last year, while the production of bituminous coal has steadily increased during the same period in every part of the country, would set the wise men of the combination to "figuring" as to the causes of these phenomena. It is clear that a single cause—depression in business—could not produce such opposite results. The iron-makers of the Lehigh come forward with one explanation. They say, "We have to pay forty cents a ton more for our coal, and receive two dollars a ton less for our iron than we did last year. We can not stand it, and as we could not induce the coal companies to give us fixed season prices, or prices based upon the selling price of iron, at the beginning of the year, we are unable to make contracts ahead, or at all, at

prices necessary to hold the trade." They say this policy is rapidly driving away their business, and is building up rival works in the West, which will intercept the entire Western trade, on which they formerly counted so much. While we can appreciate the instinct of self-preservation which makes the coal companies grasp at the (straws) last cent which manufacturers, or the public, are willing to pay, we can not but marvel at the short-sightedness which is surely destroying the foundations upon which is based the prosperity of the anthracite iron trade, and with it, that of the great coal companies themselves. With every advantage possible in the price of coal, and in transportation, our eastern furnaces would have great difficulty in maintaining themselves against the rivalry of the coke furnaces; but, as it is, the business is slipping from them beyond possibility of recall. When the coal companies come to balance their receipts of about 80 cents a ton excess over last year against the loss of two million tons of coal, and the higher wages and greater cost in every department due to this lessened output, we can not but think the results will fully confirm the wisdom of the policy which changed a profit of only $124,986, earned by the Reading Co. in June, July, and August, 1876, while under the combination, into "$1,932,433 as the profits of three months (September, October, November, 1876) of active competition at low rates and prices," and while securing this satisfactory result, advanced also the interests of every industry depending on coal.

There has been a very good inquiry the past week and a larger business done, although as yet the *inquiry* has largely predominated.

The following quantities of coal were sold by the Delaware, Lackawanna, and Western R. R. Co. at the auction on Wednesday, and the accompanying were the average prices received, comparison being made with those of the previous sale:

Tons.	August 28th. Average prices.	July 25th. Average prices.
15,000 Broken	$3.52¼	$3.48
10,000 Egg	3.66½	3.59
20,000 Stove	3.98½	3.90
5,000 Chestnut	3.37½	3.22½
50,000	3.72	3.59

At both sales buyers had the option of taking steamer instead of broken coal.

From January 1st there have been sold at auction by the Delaware, Lackawanna, and Western R.R. Co. 390,000 tons of coal at a recorded general average of $3.50 against an average of $2.70 for the whole of 1877 and $3.09 for such sales as took place after the combination was dissolved in 1876. The lowest price attained was $2.35¼ in November, 1877. The increase in prices has averaged, so far this year, 29 per cent over last year. The shipments of coal (the quantity marketed making the showing worse) have been about 19 per cent less. The cost of production and marketing has also increased with the diminished output. From these figures it may be doubted if the combination has been a benefit to the coal companies themselves, while it certainly has been injurious to other industries. The companies may slightly improve upon the deplorable reports furnished their stockholders last year, but at the same the business will be shown to have been quite unprofitable, while the trade has been curtailed where it is positively necessary that it should be greatly increased to be able to support the large amount of capital invested in coal mining and transportation.

The following are the average prices received for coal at the several auction sales this year, not including August:

	January.	February	March.	April.	May.	June.	July.
	$	$	$	$	$	$	$
Steamer	3.09	3.11½	3.25	3.30½	3.42½	3.47½	.....
Broken	3.12½	3.07½	3.22	3.30	3.45	3.48½	3.48
Egg	3.15	3.15½	3.40	3.45	3.56	3.58½	3.59
Stove	3.57	3.55	3.69	3.77	3.75	3.89	3.90
Chestnut	3.10½	3.00	3.18	3.15	3.25	3.25	3.22½
Pea	.....	2.12½	.....	.....	.....	.....	.....
Totals and averages	3.32	3.23	3.47½	3.49	3.59	3.59	3.59

The production of anthracite coal last week was 443,788 tons, as against 475,021 tons the previous week, and 279,401 tons the corresponding week of 1877. The total production from January 1st to August 24th was 10,117,687 tons, as compared with 12,219,071 tons for the like period of last year, showing a falling off this year of 2,101,384.

Bituminous.

The business in this coal is very quiet. Efforts are constantly being made to put it in the place of anthracite, and very encouraging reports are received from those who have tried the coal; but it is nevertheless up-hill work, and much difficulty is being found to get consumers to make the change, although an economy is shown. Vessels are more numerous in the Potomac, and rates of freight are easier.

New York.

Wholesale Prices of Anthracite Coal for September Delivery f. o. b. at Tide Water Shipping Ports, per ton of 2240 lbs.

	Lump.	Steamer.	Grate.	Egg.	Stove.	Chestnut.
WYOMING COAL.	$	$	$	$	$	$
Lackawana, at Weehawken	.....	.....	.....	.....	.....	.....
*Pittston, at Newburg	3 55	3 55	3 65	3 75	4 05	3 50
L. Val. Coal Co., at Amboy	.....	.....	.....	.....	.....	.....
Kingston at Hoboken	3 50	3 60	3 70	3 85	4 20	3 60
Wilkes-Barre at Pt. Johnson	3 60	3 60	3 70	3 85	4 20	3 60
Plymouth Red Ash at Port Johnson	.....	.....	3 70	3 85	4 30	3 60
Swoyers at Eliz. Pt. or S.A.	.....	.....	.....	.....	.....	.....
LEHIGH COAL.						
L. V. Coal Co., at P. Amboy	.....	.....	.....	.....	.....	.....
Cross Creek, at Port John	.....	.....	.....	.....	.....	.....
Buck Mount. Vein at Elizabeth Port or S. A	4 25	4 00	3 90	3 90	4 20	3 60
SCHUYLKILL COAL						
At Pt. Richmond, Phila.						
Hard White Ash	3 30	3 30	3 30	3 45	3 85	3 35
Free-burning W. Ash	.....	.....	3 25	3 40	3 85	3 25
Schuylkill Red Ash	.....	.....	.....	3 70	3 85	3 25
Lorberry	.....	.....	3 70	3 85	3 85	3 35
Lykens Valley Vein	.....	.....	3 70	3 95	3 95	3 55
†*Alongside in N.Y. Harbor.*						
Hard White Ash	4 10	4 10	4 10	4 10	4 40	3 80
Free-burning W. Ash	.....	.....	3 80	3 95	4 40	3 80
Schuylkill Red Ash	.....	.....	.....	4 35	4 50	3 90
Lorberry	.....	.....	.....	4 60	4 60	4 25
Lykens Valley Vein	.....	.....	4 60	4 70	4 70	4 35

* Fifty cents per ton additional for delivery in New York.

† On coal delivered f. o. b. at the Philadelphia and Reading Coal and Iron Co.'s Wharf at Williamsburgh, the current date of harbor freight will be allowed from the prices here given.

Wholesale Prices of Bituminous Coal.

DOMESTIC GAS COALS.

Per ton of 2240 lb.	At the Shipping Ports.	Alongside in New York.
Westmoreland and Penn	$4 25	.....
At Greenwich, Philadelphia	.....	$5 50
At S. Amboy	5 00	5 50
Kanawha at Richmond	4 10	5 40
Red Bank Cannel, Pa., at Philadelphia	8 00	8 50
Youghiogheny, Waverly Co., at Balt	4 00	5 65
Despard, West Va	4 50	6 00
Murphy Run, West Va., at Baltimore	3 75	5 85
Fairmount, West Va., " "	3 75	5 70
Newburg Orrel. Md. " "	3 75	6 00
Cannelton Cannel, West Va	....	10 00
" Splint " at Richmond.	6 00	7 00
" Gas Coal at Richmond	4 00	5 65
Peytona Cannel, W. Va., at Richmond	....	10 00
MANUFACTURING AND STEAM COALS.		
Cumberland at Georgetown and Alexandria	2 75@2 90	4 35@4 50
Cumberland, at Baltimore	2 90@3 00	4 35@4 50
Cl'rfi'd "Eureka" and "Franklin."		
At mines	0 75	....
At Baltimore	3 25	4 50
At Philadelphia	3 25	4 50

FOREIGN GAS COALS.

	Sterling.	Am. cur'ncy
Newcastle, at Newcastle-on Tyne	7s.6d.	$2 50@ $3 50
Liv. House Orrel, at Liv.	25s.	13 00
Ince Hall Cannel "	35s.6d.	18 00
" Gas Cannel "	25s.6d.	10 00@ 10 50
Scotch Gas Cannel, at Glasgow, nominal	25s.	7 50
	Gold.	
Bl'k House, at Cow Bay, N.S.	$1 75	$4 50
Caledonia, at Pt. Caledonia	1 50	4 25
Glace Bay at Glace Bay	1 50	4 00
Lingan, at Lingan Bay	1 50	....
Intern'l Mines, at Sydney	1 75	4 50
Pictou, Vale Mines, at Pictou	2 00	4 70

Retail Prices.

Per ton of 2000 lbs,

Anthracite.

	G. & Egg.	Stove.	Chest.
Pittston coal delivered	$5 00	$5 00	$5 00
Lack. coal, delivered below 59th St.	4 50	4 75	4 75

Bituminous.

Liv. House Orrel	$18 00	American Orrel	$11 00
Liv. House Cannel	18 00	Red Bank Cannel	7 00
Am. "	11 00	Cumberland	9 00
Ca'n'lt'n Bl'k, or splint.	10 00		

Baltimore. August 28, 1878.

[Specially reported.]

Wholesale Prices per ton of 2240 lbs.

In cars at Depot N. C. R. R.

HARD WHITE ASH, FREE-BURNING WHITE ASH, SHAMOKIN, ETC.

Lump and Steamboat	$3.85	Stove	$4.25
Broken	3.85	Chestnut	3.80
Egg	4.00		

LYKENS VALLEY RED ASH.

Broken	$4.15	Stove	$4.45
Egg	4.30	Chestnut	3.90

From wharf or yard to the trade, 50c. per ton additional. Afloat by cargo per canal barge, 15c. per ton less than in cars at depot.

Boston. August 26, 1878.

Anthracite, broken	$4.55	Caledonia	$4.00
" egg	4.60	Newcastle	4.00
" stove	5.00	Cannel, English	18.00
Franklin	5.75	" Library	15.00
Cumberland	4.50	" Buckeye	11.00
Clearfield	4 50	Penn	5.25
Westmoreland	5.25	Youghiogheny	5.25

—*Commercial Bulletin*

Buffalo. August 28, 1878.

[Specially reported by E. L. HEDSTROM.]

Until further notice, the following will be the prices for Scranton, Wyoming, Lehigh, and Blossburg coals, per ton of 2000 pounds, delivered free on board vessels at Buffalo N. Y.:

	Lump.	Grate.	Egg.	Stove.	Nut.
Scranton	....	$4.30	$4.40	$4.65	$4.15
Wyoming	....	4.30	4.40	4.65	4.15
Lehigh (Sugar Loaf)	....	....	....	....	....

Blossburg, $3.75, F. O. B.

[Specially reported by C. M. UNDERHILL.]

	DELIVERED AT			
	Elmira.	Ithaca.	Syracuse	Rochester.
	Afloat.	Afloat.	Afloat.	Afloat.
Lump	.....	.....	.....	.....
Grate	$3.50	$3.35	$3.35	$3.60
Egg	3.60	3.45	3.45	3.70
Stove	3.70	3.70	3.70	3.95
Nut	3.60	3.60	3.35	3.60

	DELIVERED AT				
	Oswego.	Erie.	Buffalo.		
	F. O. B.	F. O. B.	Afloat.	F. O. B. Ret.	Del.
Lump	.....	.....	.....	.....	.....
Grate	$3.80	$4.30	$3.90	$4.30	$4.90
Egg	3.90	4.40	4.00	4.40	5.00
Stove	4.15	4.65	4.25	4.65	5.25
Nut	3.65	4.15	3.75	4.15	4.75

Cost of coal from Erie, Oswego, Sodus Point or Charlotte for Western market, same as if shipped from Buffalo.

BLOSSBURG COAL.

Per ton of 2000 lbs.

	To dealers.	To consumers.
By car or boat	$3.25	$3.25
In yard	3.40	3.60
In car	.....	3.65
Delivered	.....	4 00

[Specially reported by LEE & LOOMIS.]

Per ton of 2000 lbs. delivered on cars.

	Lump.	Run of Mine.	Nut.	Slack.
Connellsville coke	$4.75	.....	.....	.....
Brookfield Coal	3.50	.....	.....	.....
Briar Hill	3.50	.....	2.85	.....
" " No. 2	.....	3.15	.....	.....
Youghiogheny	4.00	.....	.....	.....
Monterey	3.00	2.60	.....	.....
Catfish	3.00	2.60	.....	1.70
Stoneboro	.....	2.60	2.50	1.70
Sterling Cannel	4.50	.....	.....	.....
Cameron	.....	2.80	.....	.....
Hillside	.....	.....	.....	.....

Chicago, Ill. August 26, 1878.

[Specially reported by Messrs. RENO & LITTLE.]

The following are the present prices of coal per ton of 2000 lbs. delivered:

Retail prices of coal delivered per ton of 2000 lbs

Lackawanna Stove	$6.25	Erie and Brier Hill	$5.00
" Chestnut	6.00	Wilm'gton & Ill.	$3 00@3.50
" Grate	6.00	Blossburg	5.50@6.00
" Egg	6.00	Piedmont	7.00

Stocks of all kinds of coal liberal. Trade dull.

Cincinnati, O. August 27, 1878.

[Specially reported by the Consolidated Coal & Mining Co.]

Per bushel of 72 lbs.

	Retail delivered.	Wholesale afloat.
Youghioghney	11c.	7½c.
Camden	9c.	5½c.
Cannel	17@18c.	13c.

Anthracite, delivered, $7@$8 per ton of 2,000 lbs.

Cleveland, O. August 27, 1878.

[Specially reported by F. A. BATES, Esq.]

Per ton of 2000 lbs. f.o.b. vessels.

WHOLESALE.

Brier Hill (Church Hill)	$3.25
" " No. 2 Grades	3 00@3.15
Monday Creek	2.60
Straitsville Lower Vein	2.60
Hocking Valley	2.60
Massillon (No. 2 grades 15 cents less)	2.60
Tuscarawas Valley	2.25
Columbiana	2.25
Nut coal, various grades	1.70@2.00
Screenings " "	1.25@1.50
Youghiogheny gas coals	3 60

RETAIL TRADE.

	1 ton.	10 tons.
Brier Hill lump	$4 00	3 75
Massillon and Mineral Ridge lump	3 75	3 50
" " " " nut	3 50	3 25
Straitsville Lower Vein and Hocking lump	3 60	3 35
" " " nut	3 40	3 15

Rich Hill lump	3 50	3 35
" " nut	3 25	3 00
Columbiana, lump	3 00	2 75
" nut	2 50	2 35
Lacka'a., Wilkes-Barre and Pittston egg and grate	5 50	5 25
Lackawanna, Wilkes-Barre and Pittston stove	5 85	5 60
" " " chestnut	5 25	5 00

Lehigh $1 per ton higher.

Hamilton, Ont. August 27, 1878.

[Specially reported by H. BARNARD.]

Retail prices delivered per ton of 2000 lbs.

Scr. or Wilkes-B. Grate	$4.75	Lehigh Lump	$6.00
" " Egg	4.75	Brier Hill	5.00
" " Stove	5.25	Massillon	4.50
" " Nut	4.75	Smithing	5.50

Louisville, Ky. August 26, 1878.

[Specially reported by Messrs. BYRNE & SPEED.]
Please make the following change in prices:

Wholesale per bushel of 72 lbs.

Pittsburg	6½c.	Kentucky, in river	5½c.
Raymond City	6	Kentucky, on cars	6

Retail.

Pittsburg	10c.	City made Coke	7c.
Raymond City	9	Gas Coke	8c.
Kentucky	8	Cannel Coal	17
Hard Coke	9	Anthracite, per ton	$7 00

Milwaukee, Wis. August 27, 1878.

[Specially reported by Messrs. R. P. ELMORE & Co.]

Retail price per ton of 2000 lbs.

Anthracite, Egg, and Chestnut	$5 50		
Stove size	6 50		
Lehigh lump	$6 50	Connellsville coke on	
Brier Hill	5 00	R. R. track	7 25
		Straitsville	4 80

Montreal. August 27, 1878.

[Specially reported by Messrs. ROBERT C. ADAMS & Co.]

Wholesale per 2240 lbs.

Scotch Steam	$4.00	Cape Breton Steam	$3.25
Pictou	3.60	Newcastle Smith's	5.00

Anthracite at retail, per 2000 lbs. delivered.

Stove	$6.00	Chestnut	$5.25
Egg	5.50		

New Orleans, La. August 22, 1878.

[Specially reported by Messrs. C. A. MILTENBERGER & Co.

PITTSBURG COAL.

At wholesale (by boat-load) ..... 27c per bbl. of 180 lbs.
To steamboats ..... 45c. " "
" manufactories ..... 45c. " "
" families ..... 50c. " "
In hhds. (for shipment) .... $5.00 per hhd. from 5 to 6 bbls.

ANTHRACITE COAL

Per ton of 2000 lbs.

At wholesale ..... $7.00 to $8.00
To families etc. ..... 9 00 to 10.00

ST. BERNARD (KY.) COAL.

To steamboats ..... 40c. per bbl. of 180 lbs.
" families ..... 45c. " "
Virginia cannel to families ..... $1.00 " "

Philadelphia. August 29, 1878.

There has been a better demand for coal since the Board of Control has reduced the quota for September to 1,000,000 tons, and the improvement will be still more pronounced when it is carried out faithfully.

The Schuylkill region is afflicted again with one of the periodical short supplies of cars, which come suddenly, without notice, and upset business very much.

Vessels are plenty, and freights remain about the same. There have been so far this season less changes in coastwise freights than ever before.

Your scientific explanation of the magnifying power of the writer in the *Public Ledger* is, indeed, most satisfactory, but no instrument has been invented yet, that we are aware of, which would explain his inconsistencies. Take, for instance, the following conundrum: *Public Ledger*, August 19th.—"A representative of one of the largest companies informs us that not a single ton is sold by his company the fraction of a penny under the circular prices. This, we think, is generally true of all the coal companies." *Public Ledger*, August 26th.—"Though circular prices may not be advanced in September, it is generally conceded that those now current will be more closely lived up to by all the parties to the combination, and this will prove virtually an advance, for it is well known that during all the months of the year there has been considerable underselling."

Pittston, Pa. August 27, 1878.

Pennsylvania Coal Company's Coal in Yard.

Retail per ton of 2,000 lb.

Lump, Egg, and Stove	$2 25
Chestnut	2 00
Pea	1 00

Delivered, 50 cents per ton additional.

Richmond, Va. August 27, 1878.

[Specially reported by S. H. HAWES, Dealer in Coal.]

Per ton of 2240 lbs. f.o.b.

Kanawha Cannel	$9.00	New River Bituminous	$3.30
Coalburg Splint	4.50	Clover Hill Coal	2.50
Lewiston "	4.50	Norwood Gas and	
Kanawha Gas Coal	4.10	Steam Coal	2.70

Sandusky, Ohio. August 27, 1878.

[Specially reported by Messrs. BLACK & CLARKE, Agents Con Coal and Mining Company.]

Per ton of 2000 lbs.

ANTHRACITE.

	Grate.	Egg.	Stove.	Chest
Lehigh	$6 00	$6 00	$6 25	$5 75
Wilkes-Barre	4 80	4 90	5 15	4 65
Pittston	4 80	4 90	5 15	4 65

BITUMINOUS.

Massillon	$2 85	Straitsville	$2 50
Hocking Valley	2 50	Piedmont	4 10

Prices retailed delivered 50c.@75c. above car prices.

San Francisco. August 22, 1878.

COAL.—Imports from January 1st to August 1st, 1878:

	Tons.		Tons.
Anthracite	7,578	Seattle	52,626
Australian	49,860	English	16,716
Coos Bay	19,050	Mt. Diablo	65,401
Cumberland	802	Rocky Mountain	371
Bellingham Bay	2,620	Ione	621
Vancouver Island	84,830	Carbondale	2,024

At this writing there is but one cargo of Australian steam coal in port unsold, and that is from a new mine and is held at $6, which is 25 cents per ton more than the last sales realized. Wallsend may be quoted strong at $6.25. We continue to receive very liberal supplies of bituminous from the north coast mines and from British Columbia, and it is really surprising with what promptness all these many cargoes disappear from sight without apparently causing a ripple upon the market. The price being low, consumption of the same is no doubt greatly enhanced thereby. The arrivals during the week embrace the following cargoes: From Newcastle, N. S. W., per Selme, 1366 tons; Coos Bay, 320 tons, per Laura May; Arcata, 350 tons; Aurora, 340 tons; Gussie Telfair, 375 tons Seattle; 1056 tons, per Gem of the Ocean; 1050 tons per Montana; Wellington, 800 tons, per Surprise; Bellingham Bay, 200 tons, per Amethyst; Yosemite, from Seattle, 1930 tons.—*Commercial Herald.*

St. Louis, Mo. August 27, 1878.

Reported by JAMES J. SYLVESTER, Secretary of the Anthracite Coal Association.]

Retail prices, delivered. Ton of 2000 lbs.

ANTHRACITE.

	Per ton.		Per ton.
Lackawanna	$7.50@	Lehigh	$8.50@
Wilkes-Barre	7.50@	Connells. Coke.	6.00@
Schuylkill	7.50@	Blossburg	7.75@

August 27, 1878.

[Specially reported by Messrs. LEWIS P. HARVEY & Co.]

BITUMINOUS.

Big Muddy	$3.65	Piedmont	$7.25
Indiana Block.	3.25	Pittsburg	4.35
Illinois Coals	2.25@2.50	Peytona	7.50
Blossburg	7.75	Lehigh Val. Ant.	7.50@8.00

Toledo, Ohio. August 27, 1878.

[Specially reported by Messrs. GOSLINE & BARBOUR.]

We quote the following prices for coal on cars at Toledo:

Ton of 2000 lbs.

	Grate.	Egg.	Chestnut.	Stove
Pittston	$4 80	$4 90	$4 65	$5 15
Wilkes-Barre	4 80	4 90	4 65	5 15
Lackawanna	4 80	4 90	4 65	5 15

Lehigh lump, $5.75.

Ton of 2000 lbs.

Straitsville lump	$2 60	Massillon nut	$2 40
" nut	2 25	Willow Bank lump	2 85
Shawnee lump	2 60	" nut	2 40
" nut	2 25	Cumberland	5 00
Hocking Valley lump.	2 60	Blossburg	4 60
" nut	2 25	Morris Run	4 60
Massillon lump	2 85	Gas Coal	3 30

Retail prices, delivered in the city, are: Stove, $5.25; Grate, Egg, and Chestnut, $5.

FREIGHTS.

Lake Freights on Coal and Iron Ore.

Representing the latest actual charters up to August 28th

From	To	Rate per ton.	From	To	Rate per ton.
Ashtabula	Milwauk'e	30	Cleveland	Milwaukee	30
"	Chicago	40	Erie	Chicago	40
"	Toronto	80	Escanaba	Cleveland*	90–$1
Bay City	Chicago*	60	"	Ashtabl'a*	90
Black Riv.	Chicago	40	Fairhaven	Chicago	80
"	Toronto	85	"	Toledo*	60
Buffalo	Chicago	25	Marquette	Chicago	$1.20
"	Cleveland*	40	"	Cleveland*	1.20
"	Chicago*	40	"	Ashtabl'a*	1.00
"	Milwaukee	25	Oswego	Chicago	80
Charlotte	Chicago	80	"	Milwaukee	86
"	Milwaukee	80	"	Detroit	45
Cleveland	Toronto	80	Sandusky	Toronto	90
"	Chicago	40	"	Milwaukee	50

* Iron ore.

BUFFALO, N. Y., August 26, 1878.

Coal freights dull and five cents lower. Cargoes scarce.

The Toronto *Mail* says: "The schooner Sweepstakes was short 24 tons of coal in her last load of 380 tons, and the schooner Garibaldi 21 tons in a load of 255 tons. In Chicago, vessels are frequently short 50 and 60 tons, which ranges from 10 to 20 per cent of the whole cargo."

Ocean Freights.

Ocean Freights on coal, iron, etc., per ton of 2000 lbs., to and from foreign and domestic ports, for four weeks, ending August 29, 1878, are given below.

DATE.	From	To	Cargo.	R'te
July 31	Philadelphia	St. Thomas	Coal	3.50
" 31	New York	Nassau	Coal	2.00
Aug. 6	Baltimore	Aspinwall	Coal	5.00
" 7	Philadelphia	Cienfuegos	Coal	5.87
" 7	Bilboa	Philadelphia	Iron ore	2.45
" 13	Hoboken	Charlottetown	Coal	1.50
" 22	New York	Genoa	Coal	4.00
" 22	New York	St. Johns, N. B.	Coal	1.00
" 29	Port Johnson	St. Johns, N. B.	Coal	1.00
" 29	Baltimore	Kingston, Jam.	Coal	3.50

Coastwise Freights.

Per ton of 2240 lbs.

Representing the latest actual charters to August 29, 1878.

PORTS.	From Philadelphia.	From Baltimore.	From Elizabethport, Port Johnson, South Amboy, Hoboken and Weehawken.
Albany		1.60	
Alexandria, Va	56		
Augusta		1.40	
Bangor, Me	1.25	1.40	80
Bath, Me	1.10	1.30	80
Baltimore	40		
Beverly, Mass	1.10@1.15		80
Boston, Mass	1.10@1.15	1.30	80
Bridgeport, Conn.		1.25	55
Bristol, R. I.	1.05		70
Cambridge, Mass.	1.12§		80
Cambridgeport	1.10@1.15		80
Charleston			
Charlestown			20
Chelsea	1 10@1.20		
Danversport	1.12†		
East Cambridge			80
Fall River	1.05	1.25	70
Gloucester	1.15		
Hartford		1.25	
Hoboken			35
Jersey City			35
Lynn	1.16		80
Marblehead	1.15		
Middletown			90
Nantucket, Mass.			90
New Bedford		1.25	70
Newburyport		1.45	90
New Haven	85@90	1.25	50
New London		1.25	60
Newport			70
New York	85@90	1.25	35
Newark		1.35	
Norfolk, Va			
Norwich		1.35	70
Norwalk, Conn		1.40	55
Pawtucket	1.15‡	1.40@1.50	75
Petersburg	70		
Philadelphia		65	
Plymouth			
Portland	95†	1.30	75
Portsmouth, N.H.	1.20	1.45	90
Providence	1.05@1.10	1.25	70
Quincy Point			80
Richmond, Va	55@60		
Rockland			80
Saco	1.40		1.00
Salem, Mass.		1.25	80
Somerset	1.05		70
Staten Island			20
Trenton		1.00	
Troy		1.65	
Wareham		1.30	
Washington	55		
Williamsburg			35
Wilmington		65	

*And discharging and towing. † And discharging. ‡ And towing. § 3c. per bridge extra.

IRON MARKET REVIEW.

NEW YORK, Friday Evening, Aug. 30, 1878.

American Pig.—There is reported, although we have not been able to confirm it, a sale of 5000 tons of No. 2X, and forge, Allentown Iron Co.'s iron, at $13.50, at furnace. We have heard of several large inquiries, but at prices below the cost of making and delivering in this market. There may be a shade better outlook, but it is so slight as hardly to be worthy of notice. A very much better business will be necessary before prices can make an upward start, and a liberal advance will be required to enable the makers, as a rule, to show a profit instead of a loss, as is now the case. We quote No. 1 foundry, at $16@$18; No. 2 foundry, $15@$17, and forge, $14@$16.

Scotch Pig.—The business is very small. Prices are unchanged and as follows: Eglinton, $22; Coltness, $23.50@$24, and Glengarnock, $23.

Rails.—The Bessemer steel-makers had a meeting this week, at which a plan for regulating the business was proposed. As it has not been adopted by all, we shall omit further mention of it till our next. In the mean time business is at a stand-still, the nominal price being $45 here. Iron rails are quoted at $32@$36.

Old Rails.—Without business, we quote at $17.50@$18.50.

Wrought Scrap is very quiet and nominal at $19.00@$20.00.

Baltimore. August 26, 1878.

[Specially reported by Messrs. R. C. HOFFMAN & Co.]

The iron market shows some improvement in increased demand for best wheel irons, other grades remaining dull. We quote prices as follows:

Balt. Char.	$26.00@$28.00	M. & White	$13.00@$14.00
Va. "	26.00@ 28.00	C'lC.B.Blooms	50.00@ 52.00
Anth.No.1	19.00@ 20.00	" " Billetts	52.00@ 55.00
" " 2	18.00@ 19.00	Refi'd Blooms	43.00@ 45.00
" " 3	16.00@ 17.00		

Buffalo. August 27, 1878.

[Specially reported by Messrs. Palen & Burns.]

	4 mos
No. 1 Foundry	$17.50
No. 2 "	16.50
Mill	15.00
Silver Gray	16.00
American Scotch A 1	18.00
" " B 1	17.00
" " No. 2	16.50

Chattanooga. August 26, 1878.

[Specially reported by J. F. James, Dealer in Iron & Metals.]

There is very little to report of any changes in the condition of this market since my last report. Mill pig-irons, of a cold-short character, for delivery between now and January, 1879, are in fair demand. Few sales of any importance have been made, and the shipments to foundries South have been very limited. Manufactured iron and light rails are quite active. Muck bar in considerable inquiry, and I hope, in my next report, to note the closing of a 2000-ton contract for one of the Western mills. Old rails, old car wheels, old axles, and scrap in good demand, with stocks very light. I quote current prices as follows:

Tenn., Ala. & Ga. Charcoal, No. 1 Foundry	$16 00@$17 00
Tenn., Ala. & Ga. Charcoal, No. 2 Foundry	15 00@ 16 00
Tenn., Ala. & Ga. Charcoal, Gray Forge	13 00@ 15 00
Tenn., Ala. & Ga. Coke, No. 1 Foundry	18 00@ 19 00
Tenn., Ala. & Ga. Coke, No. 2 Foundry	16 00@ 17 00
Tenn., Ala. & Ga. Coke, Gray Forge	14 00@ 15 00
Charcoal or Coke, white and mottled	13 00@ .....
Old rails	$18 00@$19 00
Old car wh'ls.	16 00@ 17 00
Wr'ght scrap, No. 1	16 00
Wr'ght scrap, No. 2	$11 00
Cast scrap	10 00
Muck bar	30 00@ 32 00

IRON ORES.

Red hematite or fossiliferous f. o. c. at mines, about 55 per cent metallic iron	$1.25
Brown hematite about 55 per cent metallic iron	1.75

Cincinnati, O. August 27, 1878.

[Specially reported by Messrs. Traber & Aubery, Commission Merchants for the sale of pig iron, blooms, ore, etc.]

Below please find closing quotations of our pig-iron market, viz.:

CHARCOAL.

H'n'g Rock	No. 1 Foundry & B 1	$21 00@$22 50—4 mos.
"	No. 2 "	20 00@ 21 00—4 mos.
"	Soft Silver Gray	19 00@ 20 00—4 mos.
"	Mill	18 00@ 19 00—4 mos.
Tennessee	No. 1 Foundry	20 00@ 21 00—4 mos.
"	No. 2 "	19 00@ 20 00—4 mos.
"	Mill	18 00@ 19 00—4 mos.

STONE COAL.

Ohio	No. 1 Foundry	$17 00@ .....—4 mos.
"	No. 2 "	16 00@ .....—4 mos.
"	No. 3 "	.....@ .....—4 mos.
"	No. 4 "	.....@ .....—4 mos.
"	Mill	16 00@ .....—4 mos.

COKE.

Ohio & W. Va.	No. 1 Foundry	18 00@ 19 00—4 mos.
" "	No. 2 "	17 00@ .....—4 mos.
" "	Stove	16 00@ .....—4 mos.
" "	Mill	17 00@ .....—4 mos.

CAR-WHEEL.

H'n'g R., C. B	Hecla, Vesuvius, Etna, Buckhorn, Jefferson.	$30 00@ 35 00—4 mos.
Maryland,	"Cedar Point	35 00@ .....—4 mos
Missouri,	"Maramec	28 00@ ... .—4 mos

BLOOMS.

Charcoal	$45 00@$50 00- cash

SCRAP IRON.

Cast	40c. @ 45c.—cash.
Wrought	62½c.@ $1.00—cash

Columbus, Ohio. August 27, 1878.

[Specially reported by Messrs. King, Gilbert & Warner, Dealers in Pig Iron and Ores.]

There has been no material change in the pig-iron market during the past week. The best grade of foundry irons are in good demand, and prices firm.

The usual time, four months, allowed on quotations.

FOUNDRY IRONS.

No. 1 Hanging Rock Charcoal	$22 00@$22 50
No. 2 " " "	.....@ .....
No. 1 Hocking Valley soft and strong from pure limestone ores	18 00@ 18 50
No. 2 Hocking Valley soft and strong from pure limestone ores	17 00@ 17 50
No. 1 American Scotch	18 00@ 18 50
No. 1 Moxahala	18 00@ 18 50
No. 2 "	17 00@ 17 50
No. 1 Shawnee	18 00@ 18 50
No. 1 Eliza (Jackson County)	18 00@ 18 50
Silver Gray	16 50@ 17 00

MILL IRONS.

Gray neutral	16 00@ 17 00
Mottled and white neutral	15 50@ 16 00
Gray cold short	16 00@ 16 50
Mottled and white cold short	15 00@ 15 50

Cleveland, O. August 27, 1878.

[Specially reported by Messrs. C. E. Bingham & Co.]

Per gross ton, on four months' time. Subject to change without notice.

FOUNDRY IRON.

No. 1	L. S. Charcoal	$23 00	Am. S., No. 1, Ch. Val. $20 00
No. 2	"	22 00	" " B—1, " " 18 00
No. 1	Anthracite	20 00	" " No. 2 " " 18 00
No. 2	"	19 00	No. 1, Massillon 19 00
No. 1	Bituminous	20 00	B—1, " 17 00
No. 2	"	18 00	No. 2, " 16 00

CAR-WHEEL AND MALLEABLE IRON.

No. 3,	L. S. Charcoal	$24 00	Nos. 5 & 6, L. S. Char. $24 00
No 4,	" "	24 00	

BESSEMER IRON.

Nos. 1 & 2, L. S. Char	$23 00

FORGE IRON.

No. 1, Gray	$18 00	White and Mottled	$16 00

Louisville, Ky. August 27, 1878.

[Specially reported by Messrs. George H. Hull & Co.]

The demand continues good. Prices are firm, and the sales made are at full figures. In most cases of difference between the buyers and sellers of late, the former have been obliged to come up to the latter before sales could be closed. Sellers are very firm.

The usual time, 4 months, allowed on quotations below:

FOUNDRY IRONS.

	No. 1.	No. 2.
Hanging Rock Charcoal	$21 00@$22 00	$19 00@$20 00
Southern Charcoal	18 00@ 19 00	17 00@ 17 50
H'n'g Rock, Stc'l & Coke	19 00@ 20 00	18 00@ 19 00
Southern Stonecoal & Coke	17 50@ 18 00	16 50@ 17 00

"Amer. Scotch"... $18@$19 | Silver Gray... $15@$17.00

MILL IRONS.

No. 1 Charcoal, Cold-short & Neutral	$16 00@$17 00
No. 1 Stc'l & Coke, Cold-short & Neutral	16 00@ 16 50
No. 2 Stc'l & Coke, Cold-short & Neutral	15 50@ 16 00
No. 1 Missouri and Indiana, Red-short	20 00@ 21 00
White & Mottled, Cold-short & Neutral	13 00@ 14 00

CAR-WHEEL AND MALLEABLE IRONS.

Hanging Rock, Cold Blast	$28 00@$30 00
Alabama and Georgia, Cold Blast	27 00@ 28 00
Kentucky, Cold Blast	24 00@ 26 00

Milwaukee, Wis. August 27, 1878.

[Specially reported by Messrs. R. P. Elmore & Co.]

CHARCOAL IRON.

No. 1 Lake Superior per gross ton	$23 00—4 mos.
" 2 " " " "	22 00—4 mos.

ANTHRACITE IRON.

No. 1 Anthracite per gross ton	23 00—4 mos.
" 2 " " "	22 00—4 mos.

STONE COAL AND COKE.

Warner's Am Sc'th (Bk. Band, per ton	$24 00 ....—4 mos.
Soft Silvery per ton	21 00@ ....—4 mos.
Ohio Stone Coal	22 00@ ....—4 mos.

CAR WHEEL.

Lake Superior ores per ton	$24 00@25 00—4 mos

Pittsburg, Pa. August 27, 1878.

[Specially reported by A. H. Childs.]

	4 mos.		4 mos.
No. 1 F'dry	$19.00@$20.00	M. & White	$15.00@$16.00
No. 2 "	18.00@ 19.00	Hot Blast Ch.	20.00@ 23.00
Gray Forge	16.50@ 19.00	Cold Blast W.	35.00@ 37.00

Richmond, Va. August 27, 1878.

[Specially reported by Asa Snyder, Esq.]

The aggregate of small orders for pig-iron represents a fair business.

Amer. Scotch Pig Iron			$22.00@$23.00
Anthracite	" "	No. 1	19.00@ 20.00
"	" "	No. 2	18.50@ 19.00
"	" "	No. 3	17.00@ 18.00
"	"	Mottled	15.00@ 16.00
Coke	"	No. 1	19.00@ 20.00
"	"	No. 2	18.00@ 19.00
Va. Cold Blast Charcoal Pig Iron, cold short			19.00@ 22.00
" " " " " "		neutral	27.00@ 29.00
" Warm " " "		cold short	18.00@ 20.00
" " " " "		mill	17 00@ 18 00
Old Rails			16.00@ 17.00
Wrought scrap No. 1			17.00@ 18.00
Cast scrap—Machinery			17.00@ .....
Richmond Refined Bar Iron			2.00@ 2.10
Horse-shoes			4.25@ 4.50
Mule-shoes			5.50@ .. ..
Old Dominion nails (standard size)			2.50 keg.

Freight by sail to New York, $1.60 for 2240 lbs.

St. Louis, Mo. August 27, 1878.

[Specially reported by Messrs. Spooner & Collins, Commission Agents for all kinds of Iron.]

Pig-iron business is brightening up—demand increasing. Present prospects good for a fair trade this fall. Old rails are still low, but in fair demand. We anticipate only a fair demand up to the first proximo.

COLD BLAST CHARCOAL—ALL NUMBERS.

Hanging Rock	$28@$33	Assorted Bar Iron	$1.75 rates.
Tennessee	25@ 30	No. 1 Wr'ght Scrap,	70c. cwt.
Kentucky	25@ 30	Heavy cast "	60c. "
Missouri	25@ 30	Light " "	40c. "
Georgia	25@ 30	Old rails	$19 00@$20 00
Alabama	25@ 30	Old carwheels	17 00@ 18 00

	No. 1.	No. 2.	Mill.	White and Mottl'd
Missouri stone coal	$22 00	$21 00	$19 00	$17 00
" charcoal	20 00	19 00	18 00	16 00
Tennessee charcoal	20 50	19 00	17 50	16 00
Tenn. coke very soft and strong	20 00	19 00	17 00	15 00
Hanging Rock charcoal	24 00	23 00	21 00	20 00
" " cold short	23 00	21 00	20 00	.....
	ExNo.1	No. 1.	BNo.1.	No. 2.
Alice Hanging Roc'k coke.	$23 00	$22 00	$21 00	$19 00
Moxahala Black Band ores	23 00	22 00	21 00	19 00

METALS.

New York, Friday Evening, Aug. 30, 1878.

Upon the whole, the metal market makes an actual better record this week, while there are indications that September will show a marked improvement. The yellow fever has greatly disturbed the Southern business, and will probably continue to delay it.

RECEIPTS OF METALS AT NEW YORK FOR THE FOUR WEEKS ENDING AUGUST 29TH AND YEAR FROM JANUARY 1ST, 1878.

	Aug. 8.	Aug. 15.	Aug. 22.	Aug. 29.	Year from Jan. 1
Copper, bbls	1,293	447	1,146	632	16,779
Copper, boxes	....	.....	....	.....	113
Copper, cakes	660	172	372	449	11,859
Lead, pigs	7,680	5,945	4,170	3,230	217,959
Spelter, pieces	662	.....	1,703	.....	31,665
Quicksilver, flasks	126	.....	....	.....	909

Gold Coin.—The price of gold during the week under review has ranged from 100⅛ to 100⅝, closing at 100⅛.

Copper.—There has been but very little business done during the week. The nominal price for Lake copper is 16c., although a large lot forced upon the market would not bring near that figure. To-morrow the combination among the Lake producers ends by limitation, and buyers are anxiously awaiting to see how they will move to dispose of the stocks that have been accumulating. An effort is making to form another pool and send a quantity to Europe, but the low prices for that class of copper there are very discouraging to such expectations. The latest cable advices quoted Best Selected in London at £68, and Chili Bars at £62.

Advices from London, dated August 20th, say, "The public sales of Australian this day went off as follows:

"Wallaroo—766 tons cakes, £69 12s. 6d. @ £70 17s. 6d.; average, £69 18s. 0½d.

"Burra—31 tons cakes, £68 10s. 0d. @ £68 17s. 6d.; average, £68 12s. 5d.

"121 tons ingots, £68 10s. 0d. @ £68 17s. 6d.; average, £68 13s. 0d.

"Wholesale of Burra—average £68 12s. 11d.

"Deer Bros.—18 tons ingots, £65 7s. 6d. @ £65 10s. 0d.; average, £65 9s. 4d.

"G. W. C.—57 tons ingots; highest bid, £64⅝. Withdrawn.

"The biddings were rather slow, and the result somewhat disappointing. It may be interesting to notice that the lowest price hitherto accepted by the importer of Wallaroo was £70, in 1870, in which year sales of Burra and Wallaroo, from second hand, were made at £68½ and £69 respectively, being the lowest figure on record.

"The Chili charters are composed of 1700 tons bars and ingots, 50 tons in furnace material for England, and 250 tons bars for France. The market for bars is quiet, but firm, and we note 75 tons good ordinary brands, at £61½, cash, at which there is still a small inquiry."

Tin.—The cable to-day furnishes the following quotations of Straits tin: In London, £59 10s.; in Singapore, $18.25; in Penang, $17.90, with exchange at 3s. 10⅛d. There is a report (not confirmed by us) that 25 tons of Straits have been sold at 13¼c. In addition to this, we learn of about 500 slabs sold in a small way at 13½c. We quote now at 13⅝@13½c. L. & F. is nominal at 13⅞c., and Refined at 14c.

Advices from London, dated the 20th inst., say:

"The demand is slack, and no transactions were reported. Quotations both for Straits and Australian rule from 59½s. @ 60s., but little inclination either to buy or sell thereat. Yours truly, James & Shakspeare."

Tin Plates.—Stocks are very small, and there is a stronger feeling, although there is not more business doing. We quote charcoal tins at $5.87½@$6, and ternes, $5.37½@$5.50; coke tins at $4.75@$5, and ternes, $4.62½@$4.75. The exports of tin plates from Liverpool to the United States for the first seven months of this year were 62,476 tons, against 61,857 tons for the like period of 1877. This, coupled with our light stocks, would indicate that we have been doing a very large business, although prices have steadily declined, and the business has not attracted particular attention.

Messrs. Robt. Crooks & Co., of Liverpool, under date of August 15th, say:

"There is no substantial alteration in either general market or particular descriptions. All is quiet, and so far there is no appearance of the usual fall demand, which, however, can not now be far off."

Lead.—We note sales of 250 tons of lead at 3·45c. and 150 tons in small lots at 3½c. The market is strong at the close at 3½c., but the large and accumulating stocks must have a weakening effect unless an improved demand soon springs up. The San Francisco *Commercial Herald* of August 22d notes the shipment "*via* Panama to New York, per Granada of 770,000 lbs. base bullion, 665,000 lbs. pig-lead; to China per Gaelic 6480 lbs. pig-lead, also to Japan by same 200,000 lbs. The Gustave, for Melbourne, carried 45,070 lbs. pig-lead."

Spelter and Zinc.—Ordinary spelter is quiet but firm, at 4⅛@5c., currency, while Bergen Port, from Lehigh ores, is quoted at 9c., gold, the demand abroad being greatly in excess of the ability to supply. Sheet zinc is in good request, the two mills running being booked ahead for some time. The quotation is 5¾c.

Antimony.—Hallet's is quoted at 12c. and Cookson's at 12¼c.

Quicksilver.—The San Francisco *Commercial Herald* of August 22d says: Receipts are light and the export demand in keeping therewith. The market can not be called otherwise than dull. Small lots can be picked up at 42½@43c. for prompt cash, yet leading holders ask higher rates. The Gaelic for China carried 300 flasks, and to Japan 5 flasks.

The Quicksilver exports by sea for the past week are as follows :

	Flasks.	Value.
To Hong Kong, per Gaelic, August 17th	300	$10,622
To Yokahama per Gaelic, August 17th	5	164
Totals	305	$10,786
Previously since January 1st	20,901	696,051
Totals since January 1st, 1878	21,206	$706,837
Totals same period 1877	33,395	1,132,426
Decrease this year	12,189	$425,589

Bullion.—Silver has weakened materially in London this week, under the announcement that the Indian Council will increase its weekly offerings of bills on India. The London market is reported by the *Times* of that city as disorganized in consequence, and is very weak. The failure of the Monetary Conference at Paris to establish the bi-metallic system, as advocated by the representatives from this country, has also, probably, had the effect of helping the decline. Silver is now lower than it has been since the panic of two years ago, and it must be admitted that there is little to increase the hope of better prices for the present. The London quotation is 52⅛d., while here it is 114.

DATE.	London	N. Y.	DATE.	London	N. Y.
	Pence.	Cents.		Pence.	Cents.
August 24..	52⅜	114½	Aug. 28	52¼	114¼
August 26..	52⅜	114½	Aug. 29	52⅛	114
August 27..	52 5-16	114⅜	Aug. 30	52⅛	114

BULLION SHIPMENTS.

We give below a statement showing the latest bullion shipments in addition to those announced in our issue of August 17th :

Aug. 12, Star,	Nevada	2,855.00
" 14, Tybo Cons,	"	9,646.89
" 14, Northern Belle,	"	5,681.67
" 19, Independence,	"	6,000.00
" 17, Standard,	California	20,439.42
" 21, Bodie,	"	63,400.00
" 21, Extra,	"	2,450.00
" 17, Christy,	Utah	4,906.00
— Ontario,	"	*89,125.84
" 17, McCracken,	Arizona	9,029.90
" 19, Hackberry,	"	16,000.00
" 19, Silver King,	"	10,000.00

* From 1st to 22d inclusive.

The Trojan Mine is shipping bullion at the rate of $9000 a month, the car samples showing an average of $38 per ton.

Silver King Mine.—The concentrated ore crushings of this mine have been steadily growing richer since the new mill started up in June last from an average of less than $2000 to $3000, which was the average of the last two shipments.

The Napa Consolidated Quicksilver Mine is now producing at the rate of 300 flasks per month.

Close of the International Monetary Conference.—As a matter for future reference, we append a brief statement of the arguments presented by the various representatives before the different sessions of the Monetary Conference during the past week: At the sitting on the 26th inst. Mr. Groesbeck urged the resumption of the free mintage of silver, on the ground that circumstances have greatly altered since its suspension by the Latin Union. In Germany the stock is greatly reduced, and the Asiatic demand has revived. The Swiss representative contended that if the Latin Union had not suspended the free mintage of silver, the countries composing it would have been deluged by the demonetized German stock. He also feared that the Nevada and South American supply might increase. The Belgian representative pointed out the impossibility of fixing the value of silver by legislation. Mr. Lecombe, of the English delegation, pointed out that silver was liable to great fluctuations, and these might be aggravated by changes in currency laws of various countries. No resolution of the congress, he said, could effectively lessen this evil, as every government would study only its national interests. Mr. Horton, of the American delegation, replied. He congratulated England and France on having changed the opinion they held in 1867 in favor of the demonetization of silver.

At the session on the 28th inst., Gov. Fenton closed the general debate on the part of the United States He summarized the previous arguments of the American delegates, and answered the objections to them. The Governor's speech was conciliatory. He sought to lessen the divergence of views, and to indicate a possible ground for a mutual understanding. He said the United States expected from the conference, if not a decision favorable to the free circulation of silver, at least such an expression of opinion as would enable Americans to hope to obtain later, the coöperation which they came to request.

At the close of Gov. Fenton's speech the conference suspended its sitting for one hour to deliberate upon a reply. Upon resuming the session, M. Léon Say submitted a formula of a reply which a certain number of the delegates desired to make to the American proposals.

Gov. Fenton, in his final speech on the 29th inst., urged the importance of an international agreement for the use of silver at a certain ratio with gold. He pointed out that though occasional readjustment of ratio or temporary limitation of mintage might possibly be required, these details could be easily settled. Although the United States were prepared and able to act alone, they felt that international coöperation would facilitate the full use of silver.

The formula of the reply to the American proposals was agreed to by the European delegates, but with reservations on the part of the Italians. The reply affirms the necessity of maintaining the monetary rôle of silver as well as of gold, but recommends that each state be left free to use either or both, and allow or disallow the free mintage of silver.

At subsequent proceedings on the 29th inst., the Conference decided to adjourn *sine die*. No votes were taken. The American delegation again unanimously urged that some positive action be taken, but only obtained the declaration formulated in the reply of the European delegates yesterday to the propositions of the Americans, viz., the necessity of maintaining the monetary use of both silver and gold, and the freedom of each state to use either or both, and to allow or disallow the free coinage of silver. A correspondent, summarizing the general result of the Conference, says existing complications preclude the formation of a monetary union. The English delegates pronounce the consequences of German demonetization disastrous. Monometalism is advocated by only three small states. The sentiment against the further demonetization of silver is overwhelming. The influence of the Conference is deemed important for the future of silver.

The European delegates adopted a resolution thanking the government of the United States for having brought about an international exchange of opinion on important monetary questions ; also a resolution that in view of the divergence of opinion which has been manifested, and the impossibility even of states having a double standard making any engagement relative to the unlimited mintage of silver, there is no ground for discussing the question of any international ratio between the two metals.

The Belgian and Swiss delegates held the double standard to be impracticable.

Mr. Goschen, of England, believed a universal gold standard inconvenient and dangerous, but he also believed an international ratio of value between the two metals impossible.

Professor Walker remarked that in the absence of universal free mintage of silver, the United States retained their ratio of value and the European states theirs.

The London *Times* Paris correspondent says that the American delegates seem to have succeeded in dispelling the notion that the Bland bill was designed to the prejudice of the bondholders, or that the conference originated in self-interested motives.

PARIS, August 30.—The *Official Journal* says: "The delegates to the International Monetary Conference, not being authorized to bind their respective governments, could not effect an international arrangement, but the discussions will facilitate the study and solution of questions affecting the monetary systems of the several countries."

From an editorial expression in the *Evening Post* of today, which comments upon the failure of the Conference in accomplishing any thing, we extract the following :

* * * "The foreign members of the conference also entertained the opinion, which has been indifferently concealed under polite phrases, that the non-experimental nations like England can well afford to sit by and wait while a country like the United States takes the risk of a dangerous voyage upon the silvery sea. While the whole question is in a state of transition, as it is now, these men reasoned, What policy is better for us than to watch the results of the experiments of other countries, rather than join them in their perilous financial empiricism ?"

The Coinage of France.—A report on this subject has just been addressed by the Director of the Mint to the Minister of Finance showing the number of gold and silver pieces struck since 1795 to the end of the year 1877. The former date was selected as the point of departure because that was the period when money commenced to be coined on the decimal system. As regards gold coin, the remark should be made that in 1877 none but 20-franc pieces were produced. The issue for that year amounted to a value of 255,181,140 francs, that is to say, 12,759,057 pieces. For the years preceding 1877 the nominal value of pieces struck since 1795 was, in coins of 100 francs, 44,346,400 francs ; in those of 50 francs, 46,568,700 francs ; those of 40 francs, 204,432,360 francs : 20 francs, 6,708,899,220 francs ; 10 francs, 1,013,641,610 francs ; 5 francs, 233,440,130 francs. Adding to the above the number of 20-franc pieces produced in 1877, we obtain a general total of more than eight milliards and a half (8,506,513,560 francs) of gold money coined in France since the date of 1795. As to silver, the specie produced in 1877 arises solely from orders given to the mint before the promulgation of the decree of the 6th August, 1876, which suspended the coining of 5-franc pieces. Those struck reach a value, in that year, of 16,464,285 francs. No other silver money was struck in 1877. From 1795 to 1876 France coined 5,510,000,000 francs in silver ; 5-franc pieces counted for more than five milliards; those of 2 francs for 152,000,000 ; 1 franc for 193,000,000, and 50 centimes for $9,000,000. The total value of the bronze money struck in 10, 5, 2, and 1 centime pieces reaches from 1795 to the present time, the sum of 62,702,787 francs, 40 centimes.—*Galignani's Messenger, August* 14th.

The Government Profits on Silver Coinage.—The San Francisco *Bulletin* thinks the government is making money rapidly by the coinage of silver dollars, and figures the profit in this way : The Secretary takes $80,000 in gold, and buys silver enough to make $100,000 in standard dollars. He now takes $90,000 of the standard dollars (worth in gold $80,000), on which he has already made a profit of 10 per cent, and buys enough silver to coin another $100,000 in standard dollars. The silver-bullion seller takes the over-valued coin for the second $100,000 in fine silver just as readily as he did the gold coin for the first $100,000, simply because the custom-house affords him an opportunity of working it off nearly the same as if it were gold. The Secretary does not have to repeat the act many times before the $90,000 in gold which he took out of the bullion fund is replaced, and he has $90,000 besides, which can be used as an accumulating fund for keeping up the coinage of silver dollars.

Carrying Coin through the Mails.—The first shipment of coin through the mails arrived in this city from San Francisco on the 18th inst—$100,000 in double eagles. The others arrived on the 21st, 22d, 23d, and 25th inst. The coin is forwarded by the Postal Service as third-class matter, in amounts not exceeding $100,000, and made up in packages of $1000 each. There are 100 packages, each weighing sixty ounces. During transportation they are inclosed in burglar-proof safes, especially manufactured for the purpose, and accompanied to their destination by a proper guard. In the matter of individuals forwarding coin, the rate will be the same as charged to the government, but the Post-office will not hold itself liable for loss.

The plan is looked upon with much favor by officials of both departments, who are firm in the belief that the experiment will prove a success.

Standard-Dollar Statistics.—WASHINGTON, August 30.—The amount of standard silver dollars coined is $12,896,500 ; the amount outstanding, $2,659,184, leaving on hand $10,237,316. The demand for them is increasing, especially by the banks which pay pension checks, the payment of which, amounting to $7,000,000, will begin on the 4th of September, when pensioners will receive a small part in the standard silver dollar.

The Silver Market Abroad.—LONDON, August 30.—The *Times* in its financial article says : "Although transactions in silver on the Indian account are, and have been for some time conspicuously absent, the market for refined silver bars has become disorganized on the announcement that the India Council are about to increase the amount of bills to be offered for sale. Altogether the present position of Eastern exchanges and the silver market is very unsettled, and, so far as the immediate future is concerned, there are certainly no hopeful or redeeming features to be seen."

Salt Lake Ore and Metal Market.

SALT LAKE CITY, Utah, August 30, 1878.

Argentiferous Lead (*Base Bullion*), $22 to $25 per ton for lead ; $1.13 to $1.15 per ounce for silver ; $20 per ounce for gold. The quotations for silver are based upon the silver in the lead of 80 to 120 ounces per ton of 2000 lbs.

The *Commercial Herald* of the 22d inst. reports the following shipments of ores and bullion: "The schooner Matthew Turner from San Marcos Island has arrived with 105 tons copper ore. The Granada, for New York, *via* Panama, carried 13,500 lbs. silver ore, 780,000 lbs. base bullion, and 665,000 lbs. pig-lead. The Gustave, for Melbourne, carried of pig lead 45,070 lbs.; the Gaelic, for China, carried 6480 lbs. pig-lead. The Cordillera, for Cork, has 791 ctls. copper ore."

FINANCIAL.

Miscellaneous Stocks and Quotations.

Sales and quotations of the stocks and bonds dealt in here, at Philadelphia and Baltimore for the week ending the 30th inst. are given in the following tables. The Philadelphia quotations will have a * affixed. The Baltimore quotations are indicated thus †.

STOCKS.	Par Value.	High'st	Lowest	Closing	Sales : Shares.
American Coal Co.	$25	.....	.....	28	.....
St.L.,I.M.& S.R.Co..	100	.....	.....	5	.....
Spring Mt. Coal Co.	50	.....	.....	50	.....
*Cambria Iron Co..	50	.....	.....	55	.....
*Penn. Salt Mf'g Co.	50	.....	.....	67	.....
*Westm'land C. Co.	50	.....	.....	60	.....
*Buck Mt. Coal Co..	50	.....	.....	36	.....
*Schuyl. Nav. Co...	50	.....	.....	.....	.....
†B.&O.RR.Co.1st pf	.....	.....	.....	93	.....
†B.&O.RR.Co.2d pf	100	.....	.....	85	.....
" " " com	90	88	87	87½	30
†George's C'k C. Co	100	.....	.....	86½	.....
†S. Clara M'g Co...	100	.....	.....	25c.	.....
†Atlantic Coal Co.	10	.....	.....	91c.	.....

BONDS.	Princ'l. When Due.	Int'est. When Due.	Hig'st.	Lowest	Amount.
D., L. & W., 7s, conv	1892	J. & D.	.....	.....	.....
" " " 2d mtge.	1881	M. & S.	.....	107	.....
N.J.C.,1stmtge.new	1890	F. & A.	112¼	.....	4,000
" " " 1st mtge.,con	1899	Q.	.....	.....	.....
" " " convt.	1902	M. & N.	.....	.....	.....
Lehigh & W. B., con	1899	Q.	60¼	58	14,000
Am. Dock & Imp. 7s	.....	J. & J.	.....	50	.....
St.L.I.M.& S..1st mt	1892	F. & A.	103¾	.....	2,000
Ches. & O., 1st mtge	1899	M. & N.	.....	27	.....
D & H C Co.,1stm.rg	1884	J. & J.	.....	101	.....
" " " " " "	1891	J. & J.	.....	101	.....
" " " " m.loan cp	1894	A. & O.	.....	100	.....
" " " " " rg.	1894	A. & O.	.....	100	.....
" " " " new mge.	.....	.....	.....	.....	.....
*L.V.R.,1stm.6s.cp.	1898	J. & D.	.....	109	.....
" " " rg.	1898	J. & D.	111¼	.....	5,000
" " " 2d m. 7s,rg.	1910	M. & S.	113⅜	.....	2,000
" " " con.m.6s,rg	1823	J. & D.	99¾	99½	4,000
" " " 6s cp.	1923	J. & D.	99½	.....	10,000
*Pa.RR.,1st m.6s,cp	1880	J. & J.	104⅜	104	16,000
" " g. m., 6s, cp.	1910	J. & J.	107¼	.....	6,000
" " " 6s, rg.	1910	A. & O.	109	108¾	4,000
" " con.m.6s,rg.	1905	Q.	95	.....	1,000
" " " 6s, cp.	1905	J. & D.	95½	.....	5,000
" " new loan, 5s	.....	.....	112	.....	2,000
*P.& R. R., 1st m.6s, R. C. 43-44.	1880	J. & J.	.....	.....	.....
P. & R. R., 1st m. 6s, R. C. 48-49.	1880	J. & J	.....	.....	.....
P.& R. R.,2d m.7s cp	1893	A. & O.	.....	112	.....
" " " scrip....	1882	J. & J.	.....	58	.....
" " " in.m.7s,cp	1896	J. & D.	.....	.....	.....
" " " c.m.7s,cp.	1911	J. & D.	90¾	.....	1,000
" " " 7s. rg.	1911	J. & D.	... ...	.....	.....
" " " cvt.7s,R.C	1893	J. & J.	... ...	.....	.....
" " C.& I.Co.,Deb 7s, R. C.	1892	M. & S.	.....	.....	.....
& R.C.& I. Co., m. 7s, R. C.	'92-3	various	.....	.....	.....
L. Nav. Co.,6s,rg.m.	1884	J. & D.	.....	104½	.....
" " RR., rg. m.	1897	F. & Q.	.....	104	.....
" " cvt. co. G. R.	1894	M. & S.	.....	94	.....
" " " Gold R. C.	1897	J. & D.	92	.....	500
" " con.m.7s,rg.	1911	J. & D.	75	.....	2,000
*P.& N.Y.C.,7s,R.C.	1896 / 1906	J. & D.	.....	114	.....
*Pa Canal, 6s. cp..	1910	J. & J.	.....	.....	.....
*Schuyl.Nav.,1st m. 6s. rg.	1897	M. & O.	.....	89	.....
*Sus.Coal, 6s, rg...	1911	J. & J.	.....	.....	.....
†Balt.&O. RR., 6s..	1880	J. & J.	.....	104½	.....
" " " " 6s..	1885	A. & O.	105¼	.....	1,000

Total transactions for the week..... $79,500

New York Stocks.

NEW YORK, Friday Evening, Aug. 30, 1878.

The market for coal stocks closes to-day at well-maintained quotations. The transactions for the week do not amount to 60,000 shares, of which Delaware, Lackawanna, and Western transactions include 49,329 shares, the prices ranging from 53⅛ to 51⅛, and closes to-day at 52⅝. The quotations of Delaware and Hudson were 50⅛@48¾, and the final price 49¾, with sales of 4281 shares. New Jersey Central stock has been comparatively quiet, only 2700 shares changing hands, the prices varying from 34 to 32¼, and closing at 32¾.

Chicago and Eastern Illinois R. R.—Surveys are being made for a branch from Dolton to South Chicago. The object is to enable the company to deliver coal directly to the iron works at the latter place.

COAL TRANSPORTATION AND GENERAL MINING STOCKS.

COAL STOCKS.

Name and Location of Company.		Feet on Vein.	Capital Stock.	Shares. No.	Shares. Par Val.	Assessments. Total levi'd to date.	Assessments. Date and amount per share of last. Mo.	Yr.	Amt.	Dividends. Total paid to date.	Last Dividend. Mo.	Yr.	Amt.	Rate per Ann.	Highest and Lowest Prices Per Share in Currency at Which Sales Were Made. N. B.—Quotations of D., L. & W. R. R., and Pa. Coal Co. are per $100=two shares. Aug. 24. H.	Aug. 24. L.	Aug. 26. H.	Aug. 26. L.	Aug. 27. H.	Aug. 27. L.	Aug. 28. H.	Aug. 28. L.	Aug. 29. H.	Aug. 29. L.	Aug. 30. H.	Aug. 30. L.	Sales.
			$			$				$				Per c'nt												
Consol. Coal	Md.		10,250,000	102,500	$100	*					Jan.	1877	2½													
Del. & H. Canal	Pa.		20,000,000	200,000	100	*				38,821,104	Aug.	1876	4	9			49¼	49	50	48¾	49⅝	48⅞	49¾	49¼	50⅛	49⅛	4,281
Del., Lac. & W. R. R.	Pa.		26,200,000	524,000	250	*					Jul'y	1876	2½	5	51⅞	51⅛	52⅛	51½	53⅛	52⅜	52¾	51¾	52¼	51½	52⅞	51⅞	49,329
Lehigh C. & Nav.	Pa.		10,448,550	208,971	50	*					Nov.	1876	1½	5½					18¼	17⅞	17¾	17¾	18	17¾	18	17¾	1,720
Lehigh Valley R. R.	Pa.		27,228,855	540,858	50	*					July	1878	1		40½	39½	39¼	39¼	39¼	39¼	39¼	39¼	39	38¾	39	38¾	816
Maryland Coal	Md.		4,400,000	44,000	100	*					Jan.	1876	1½	1½													
N. J. Central R. R.	Pa.		20,600,000	206,000	100	*					Apr.	1876	2½	2½	32¾	32¼	33¾	33½	34	32⅞	33½	32¾	32¾	32½	32¾	32¾	2,700
Pennsylvania Coal	Pa.		5,000,000	100,000	50	*					May.	1878	3														
Pennsylvania R. R.	Pa.		68,870,200	1,337,404	50	*					May.	1877	1¼	8	32¾	32⅜	32½	32⅜	32⅜	32	32¼	32	32½	32	32⅜	32⅜	12,948
Phil. & Read. R. R.	Pa.		34,278,175	685,563	50	*				43,012,497	Jan.	1876	2¼†	10	16⅜	16⅛	16⅜	16⅜	16⅜	16⅛	16⅜	16¼	16⅜	16¼	16½	16½	8,377

GENERAL MINING STOCKS.

Dividend Paying Mines.

Vmerican	Col.		1,000,000	100,000	10	*				60,000	July	1878	$0	10	12	8												100
Belcher, G. S.	Nev.	1,040	10,400,000	104,000	100	1,288,200	July	1878	1 00	15,397,200	Apr.	1876	1	00	12													
Hobtail, G.	Col.	2,500	1,136,630	227,326	5	*				56,831	Nov.	1877		25														
Bobtail Tunnel, G.	Col.		100,000	20,000	5	52,000	July	1873	0 30	48,000	June	1878		50	20													
California, G. S.	Nev.	600	54,000,000	540,000	100					29,160,000	Aug.	1878	1	00	24			12		13	12¾	12¾	12	13½	13⅛	15½	14⅞	425
Calumet & Hecla, C.	Mch		2,000,000	80,000	25	1,200,000				13,450,000	Aug.	1878	5	00	20	178		177¾	177½	177		177						74
Central, C.	Mch		500,000	20,000	25	100,000	June	1862	0 65	1,260,000	Feb.	1878	5	00														
Cholla Potosi, G. S.	Nev.	1,400	2,800,000	28,000	100	1,610,000	Jan.	1878	3 00	3,050,000	Feb.	1872	1	00														
Copper Falls, C.	Mch		1,000,000	20,000	50	535,000	May.	1876		100,000	Nov.	1871	1	00		1½												100
Cons. Virginia, G. S.	Nev.	710	54,000,000	540,000	100	474,600	June	1873	3 00	40,500,000	June	1878	1	00	12	9¾		10¼	9⅝	12	11¼	11⅞	11¾	12½	12	13⅛	13⅛	825
Confidence, G. S.	Nev.	130	2,496,000	24,960	100	256,320	Apr.	1878	0 50	78,000	May.	1865	8	½	8½													
Cons. Her. & Roe	Col.	16,500	1,000,000	100,000	10	*				120,000																		
Crown Point, G. S.	Nev.	600	10,000,000	100,000	100	1,773,370	June	1878	1 00	11,588,000	Jan.	1875	2	00	24													
Eureka Cons., G. S. L.	Nev.		5,000,000	50,000	100	100,000	....	1876	1 00	2,950,000	Aug.	1878	3	00	24													
Eureka G. Mg., G.	Cal.	1,680	2,000,000	20,000	100					2,149,000	Apr.	1878	0	25														
Franklin, C.	Mch		500,000	20,000	25	360,000	June	1876	5 00	585,000	Nov.	1871	1	00														
Gould &Curry, G. S.	Nev.	612	10,800,000	108,000	100	2,666,000	Apr.	1878	1 00	3,826,800	Oct.	1870	10	00						10¾								100
Grand Prize	Nev.	1.500		100,000		100,000	July.	1878	1 00	400,000	Feb.	1878	1	00												6½		50
Hale & Norcross, G. S.	Nev.	400	11,200,000	112,000	100	2,914,000	Aug.	1878	1 00	1,598,000	Apr.	1871	5	00	12													
Hukill, G. S.	Col.	3,288	1,000,000	100,000	10	*				190,000	Aug.	1878	0	10	12			4.40		4.50	4.45			4.20				400
Kentuck, G. S.	Nev.	95	3,000,000	30,000	100	300,000	Aug.	1878	1 00	1,252,000	Mar.	1870	5	00														
Leopard, L. G. S.	Nev.	1,500	5,000,000	50,000	100	150,000	June	1878	50	162,500	Dec.	1876	0	50										2¾				100
Merrimac, S.	Mas.	1,500	500,000	100,000	5	*				120,000	Mar.	1878	0	10	12													
Minesota, C.	Mch		1,000,000	20,000	50	436,000	June	1869	1 00	1,820,000	Mar.	1876	0	50														
Moose	Col.	39,000	2,000,000	200,000	10	*				200,000	Mar.	1878	0	25	10			3.10										100
National, C.	Mch.		500,000	20,000	25	195,000	Oct.	1875	1 00	360,000	Oct.	1873	1	00														
N. Y. & Colorado, G.	Col.		1,000,000	50,000	20	*				20,000	Mar.	1877	0	20		2	1.95	2	1.90	2		2		2				1,100
Northern Belle, S.	Nev.	1,600	5,000,000	50,000	100					1,425,000	Feb.	1878	1	00														
Ontario.	Uth.	3,000	10,000,000	100,000	100					1,450,000	July	1878	1	00	6	38¾		38⅞	38¾	38⅞		38⅞		38⅞	38¾	39	38¾	1,410
Ophir, G. S.	Nev.	675	10,080,000	100,800	100	3,236,000	June	1878	1 00	1,394,400	Mar.	1864	4	00														
Pewabic, C.	Mch.		500,000	20,000	25	185,000	June	1868	3 00	460,000	July	1873	1	00														
Phœnix, C.	Mch.		1,000,000	20,000	50	817,500	Sept.	1870	3 00	20,000	Jan.	1876	1	00														
Plumas	Cal.		1,000,000	100,000	10					50,000	Aug.	1878		10														
Polar Star, G. S.	Col.	1,300	500,000	50,000	10	*				5,000	Jan.	1878	0	10														
Quincy, C.	Mch.		200,000	20,000	10					2,230,000	Feb.	1878	5	00						13		12¾	12½					
Raymond & Ely, G. S.	Nev.	5,000	3,000,000	30,000	100	600,000	Aug.	1878	1 00	3,075,000	Sept.	1873	3	00														
Ridge, C.	Mch.		500,000	20,000	25	200,000				90,000	Feb.	1875	1	00														
Rye Patch	Nev.	1,000		30,000		97,500	Nov.	1876	0 50	105,000	Dec.	1877	0	25														
St. Joseph, L.	Mo.	2,000 acs.	1,000,000	100,000	10					250,000																		
Savage, G. S.	Nev.	800	11,200,000	112,000	100	3,860,500	June	1878	1 00	4,460,000	June	1869	3	00														
Seaton, G. S.	Col.	1,700	500,000	50,000	10	*				10,000	May	1877	0	10	12					75c.	70c.	70c.	60c.					500
Sierra Nevada, G. S.	Nev.	3,650	10,000,000	100,000	100	2,050,000	July	1878	1 00	102,000	Jan.	1871	1	00	10													
Silver King										350,000	May	1878	0	50														
Standard	Cal.			50,000		50,000	July	1878	1 00	450,000	Aug.	1878	1	00														
Yellow Jacket, G. S.	Nev.	1,200	12,000,000	120000	100	3,678,000	Apr.	1878	2 00	2,184,000	Aug.	1871	2	50														

Non-Dividend Mines.

Allouez, C.	Mch.		1,000,000	20,000	50	940,000	May	1876	5 00																			
Alpha, G. S.	Nev.	300	3,000,000	3,000	100	240,000	Mar.	1878	1 00																			
Am. Flag, G.	Col.	5,300	600,000	60,000	10	*														15c	14c							700
Bertha & Edith. G.	Vir.	645 acs.	3,500,000	350,000	10	*										5c		5c		5c		6c	5c			5c		7,300
Best & Belcher, G. S.	Nev.	545	10,080,000	100,800	100	438,590	Apr.	1878	1 00																			
Buckeye	Col.		2,000,000	400,000	5	*										41c	39c	43c	39c	40c	39c	42c	39c	41c		40c	39c	10,700
Bullion, G. S.	Nev.	943⅛	10,000,000	100,000	100	2,952,000	Aug.	1878	1 50																			
Caledonia, G. S.	Nev.	2,188	10,000,000	100,000	100	1,440,000	May.	1878	0 50																			
Cashier	Col.		500,000	250,000	2	*												1½										50
Cleveland, G.	Col.	3,715	250,000	25,000	10	*																						
Cons. Imperial, G. S.	Nev.	468	50,000,000	500,000	100	675,000	Apr.	1878	0 20													1.30						150
Con. N. Slope & E. C.T.	Col.	15,000	500,000	10,000	50	*																						
Dahlonega	Ga.		250,000	250,000	1	*												13c				14c	13c					2,700
Dana, C.	Mch.		500,000	20,000	25	68,000	Jan.	1863	0 50																			
Dawson, S.	Ont.		1,200,000	60,000	20																							
Duncan, S.	Ont.		1,200,000	60,000	20	75,000	July	1876	41⅔							2⅜	3¼	3¼	3	2⅛	2¾							875
Exchequer, G. S.	Nev.	400	10,000,000	100,000	100	380,000	Jan.	1878	1 00																			
Gold Placer, G.	Col.		5,000,000	200,000	25													29c	28	26c		27c	26c	26c		27c	16c	2,300
Granville, G.	N. C.	357 acs.	1,000,000	100,000	10	*			0 50									1	90c	1								600
Humboldt, C.	Mch.		500,000	20,000	25	100,000	Sept	1876	0 15																			
International, S.	Ont.		1,200,000	60,000	20											50c												200
Julia, C. S.	Nev.	3,000	11,000,000	110,000	100	525,000	Jan.	1878	0 75																			
Justice, G. S.	Nev.	2,100	10,500,000	105,000	100	2,658,500	Aug.	1878	1 50																			
King's Mountain, G.	N. C.		1,200,000	120,000	10	*																		1.65		1.65		200
Lacrosse	Col.	3,900	1,000,000	100,000	10	*										29c		29c	28c	29c	28c	30c	28c	29c	28c	28c		15,000
Luzerne	Col.	4,200	5,000,000	500,000	10	*																						
Madison, C.	Mch.		500,000	20,000	25	123,000	Sept	1876	0 10																			
Mariposa preferred	Cal.	44,387	5,000,000	50,000	100	1,425,000	June	1877	1 00																			
" common	Cal.	acres.	10,000,000	100,000	100	1,425,000	June	1877	1 00							1¾												100
Memphis	Col.	6,000	300,000	60,000	5	*																						
Mesnard, C.	Mch.		500,000	20,000	25	160,000	Apr.	1876	0 50																			
Mexican, G. S.	Nev.	600	10,080,000	100,800	100	217,400	May.	1878	0 50																			
Mt. Bross Tunnel	Col.	8,600	2,000,000	200,000	10	*																						
Overman, G. S.	Nev.	1,200	3,840,000	38,400	100	3,173,880	Apr.	1878	3 00																			
Osceola, C.	Mch.		1,000,000	40,000	25	2,567,880	Nov.	1877	3 00																			
Petherick, C.	Mch.		500,000	20,000	100	165,533	Mar.	1876	0 50																			
Pleasant View, G.	Col.	1,200	200,000	20,000	10	*																						
Quicksilver preferred.	Cal.	3,500	4,291,300			*														35		35		34				1,325
" common	Cal.	acres.	5,708,700	100,000	100											12												100
Rockland, C.	Mch.		500,000	20,000	25	495,000	Jan.	1874	1 00																			
Seg. Belcher, G. S.	Nev.	160	640,000	6,400	100	244,800	Apr.	1876	5 00																			
Silver City, G. S.	Nev.	3,900	6,310,000	63,100	100	15,775	Nov.	1876	0 25																			
Silver Hill, G. S.	Nev.	5,400	10,800,000	108,000	100	1,242,000	July.	1878	0 50																			
Star, C.	Mch.		500,000	20,000	25	265,000	Mar.	1876	0 50																			
Superior, C.	Mch.		500,000	20,000	25	340,000	Mar.	1874	0 25																			
Union Cons. G. S.	Nev.	850	10,000,000	100,000	100	310,000	Apr.	1878	0 25																			

G. Gold. S. Silver. L. Lead. C. Copper. * Non-Assessable. † A dividend of 3¼ per cent. was declared on the preferred stock of this Co. in July, 1876.

Total Assessment levied to date	51,830,840	Total Sales of Coal Stocks for the week	80,071 shares
Total Mining Dividends to date	229,725,332	Total Sales of Mining Shares for the week	101,889 "

Bell's Gap R. R.—It is said that this narrow-gauge road is to be extended from its present terminus at Lloyd's, Pa., northwest to Whitmer Run, in Clearfield County, about 12 miles. It will pass over a large extent of undeveloped coal land.

The Bradford and Mt. Pleasant R. R. Co. is talking of extending the road to Latrobe on the line of the Pennsylvania Railroad. Engineers have been examining the different routes, and make very favorable reports.

Reading Hydraulic Works.—30 shares of this stock sold at auction during the week, par $100, at $3 per share.

Philadelphia Stocks.

PHILADELPHIA, Friday, August 30, 1878.

A very small business has been done in coal stocks during the operations of the past week at Philadelphia, the sum total of all the transactions scarcely reaching 25,000 shares. The quotations at the close to-day are about the same as reported in our last with no special feature in prices throughout the operations of the week. The extreme range in the quotations of the various stocks were as follows: Lehigh Coal and Navigation Co., 18¼@17¾, at which it closed; sales, 1720 shares. Lehigh Valley R. R., 40½@38¾, at which it closed; sales, 816 shares. Pennsylvania R. R., 32½@32, closing at 32⅜; sales, 12,948 shares. Reading, 16½@16¼, closing at the former figure; sales, 8377 shares.

Gas Stocks.

NEW YORK, Friday Evening, August 30, 1878.

The Camden (N. J.) Gas Contract.—The Lighting Committee on the 29th inst. reported that they had made a contract with the Camden Gas-Light Company to light the street lamps, keep them in good repair, keeping them burning all night, except when the moon shines, and extinguish them for $31 per lamp per annum. Their contract was affirmed.

AUCTION SALES.

Metropolitan Gas-Light Co.—3 shares at $130 per share; also $120 scrip bonds at 102½ per cent.

Municipal Gas-Light Co.—4 shares at $97½ per share.

The following list of Companies in New York and vicinity is corrected weekly by GEORGE H. PRENTISS, Broker and Dealer in Gas Stocks, No. 30 Broad street, New York:

COMPANIES IN NEW YORK AND VICINITY.	Capital Stock.	Par.	DIVIDENDS. Rate per ann.	Am. of last.	Date of last.	QUOTATIONS Bid.	As'd
	$		P. ct.				
Mutual, N. Y....	5,000,000	$100	6	1½	July, '78	72	*76
" Bonds...	90,000	1,000	6	3½	Aug., '78	.....	102
N. York "	4,000,000	.....	8	4	May, '78	90	95
Metrop. "	2,500,000	100	10	5	Aug., '78	129	135
" Certfs...	1,000,000	.....	7	3½	" '78	100	103
Harlem "	1,850,000	50	6	3	Feb., '78	75	82
Manhat. "	4,000,000	50	....‡	5	May '78	180	190
Brooklyn, Bkln.	2,000,000	50	15	5	Apr., '78	145	157
Nassau	1,000,000	25	....‡	3	July, '78	73	77
" Certfs...	700,000	1,000	7	3½	May, '78	90	97
People's.....	1,000,000	10	....‡	3½	Jan., '78	20	30
" Certfs....	300,000	1,000	7	3½	July, '78	75	85
" Bonds....	325,000	.....	7	3½	May, '78	90	96
Metrop. "	1,000,000	100	5	2½	May, '78	60	67
W'msb'g "	1,000,000	50	8	1½	July, '78	75	80
" Certfs...	1,000,000	.....	7	3½	July, '78	95	100
Citizens'.....	1,200,000	20	....‡	3	July, '78	73	80
" Certfs...	320,000	1,000		3½	Apr '78	97	103
J. C., N. J....	750,000	20	10	7½	July, '78	150	160
Municipal, N. Y.	466,000	50	.....	.....	.....	95	100
" Bonds..	750,000	.....	.....	.....	.....	.....	...
.....	.....	.....	.....	.....	.....	.....	...

*Ex Dividend.

Copper Stocks.

Reported by WILSON W. FAY & Co., Brokers in Mining and Miscellaneous Stocks, Room 7, Traveller Building, 31 State street.

BOSTON, Wednesday Evening, Aug. 28, 1878.

The appearance of the market at the close to-day is decidedly more favorable, and bids fair to continue so for the present, and we have no doubt but what it will continue to improve as the season progresses.

The principal stocks are undoubtedly looking better, and the disposition to trade in them is more evident than it has been for some time, and although the prices of the majority of them do not show any very marked improvement, yet there is every indication of a returning confidence, and a better feeling toward this line of stocks.

Calumet & Hecla has declined to 177 bid, and 177¼ asked, and sales at 177, after having sold up to 180 during the week.

Central has advanced to 30 bid, and still no stock offering.

Copper Falls is steady at 1⅛ bid, and sales, the directors appearing willing to take all the stock that comes along at that figure, and there are some few lots offered at 1⅝.

Franklin is quiet at 5¾@6⅛.

Osceola is also quiet at 7½@9; no sales.

Pewabic is dull at 1¼@1¾, and no sales.

Quincy has been comparatively active, having advanced during the week, and sold at 13, and then declining again to 12⅛, upon the sale of some 500 shares. It closes steady at 12@12¼.

Ridge is steady at 1⅛@1⅜.

Duncan fell off, and sold as low as 2⅝, but rallied again, and is now quite strong at 3⅞ bid, and 4⅛ asked.

International sold at 50, and was offered at that figure, but is now also stiffer at 50 bid, and 60 asked.

The Silver Islet Mine.—The Thunder Bay *Sentinel* says: "We are glad to be able to say that matters at Silver Islet are again looking most favorable. The company now employ constantly, from 180 to 200 men, and the production of silver from the Islet and the mill averages about $10,000 per week, and is likely to be considerably increased, owing to the rich strike recently made in the mine, below the third level. The shaft on the main land is still in the slates, about eighty feet down, and interesting developments may be looked for when at a depth of 100 feet; the 'cross-cuts' are driven toward the anorthite and diorite dikes. The openings on the company's property on the Island of St. Ignace have yielded some argentiferous copper ore and native silver."

We note the statement that the Osceola mining company will probably declare a dividend of one dollar per share in a short time.

Gold and Silver Stocks.

NEW YORK, Friday Evening, Aug. 30, 1878.

There is a very great interest being taken in mining investments. On every side we hear mention of the great fluctuations (mostly favorable of late) that have occurred in San Francisco stocks, and had we the means of dealing in these stocks in a manner that would put the East on a basis similar to San Francisco, there would unquestionably be large transactions here also. Did the stocks listed at our own exchange merit attention, they would receive it. It is to be hoped that some good paying mines may soon be put on this market. In fact, there are indications that we shall soon see some mines of great merit offered on our board, and coming, as they do, with reports that can be verified, and under proper auspices, they are meeting with great encouragement. We note, for instance, the Penobscot and Snowdrift mines. A company has been organized under the laws of Montana, with a capital of $500,000, divided into 100,000 shares of $5 each. Nearly all the stock that the promoters desire to sell has been subscribed for. The company has been organized with the following trustees: Capt. Wm. B. Frue, R. H. Rickard, and N. S. Vestel. Capt. Frue was elected President, and R. H. Rickard Secretary and Treasurer. The office of the company is temporarily at 19 Nassau street. In our issue of August 3d, we gave the latest information obtained to that date. A telegram from Mr. Walter McDermott, dated Belmont, Mont., August 28th, says: "The vein at bottom of shaft making together. Drift west end 6 feet in. Horse cutting out rapidly, and at west end only 2 feet in width (at one time 8 to 10 feet). Raise (to meet air shaft) 15 feet; vein good; much carbonate ore. Prospects good. Air shaft to connect with raise; thick streaks carbonate ore whole length of shaft, very rich, gold showing plainly. Penobscot mine looking good. Machinery (stamp mill) moved; will commence to stamp." Mr. John C. Randolph has gone to the mine to report for parties interested here and will telegraph the substance during the coming week.

The transactions at the Mining Exchange this week show an improvement over several preceding ones. Among the California stocks we note the following transactions: In California, 425 shares at $12@$15½; Consolidated Virginia, 825 shares at $9⅝@$13½; Gould & Curry, 100 shares at $10¾; Grand Prize, 50 shares at $6½; Leopard, 100 shares at $2¾; Consolidated Imperial, 150 shares at $1.30; Leviathan, 2600 shares at 80@75c. This is a very much larger business in these stocks than we have ever seen at our exchange, and it is looked upon as genuine.

In the stocks of the regular list the dealings have been as follows: American, 100 shares at $6; Hukill, 400, at $4.50@$4.20; Moose, 100 at $3.10; New York and Colorado, 1100 at $1.90@$2; Seaton, 500 at 75@60c.; Cashier, 50c.@$1½; Granville, 600 at 90c.@$1; Kings Mt., 200 at $1.65; Ontario, 1410 shares at $38¾@$39.

The Superintendent of the Ontario Silver Mining Company reports that the new shaft has been sunk to a depth of three hundred and forty-eight feet.

The ore-body in the 500-foot level is twelve hundred feet long, and will average $200 per ton.

In the low-price "fancies" the dealings have been as follows: American Flag, 700 shares, at 15@14c.; Bertha and Edith, 7300, at 5@6c.; Dahlonega, 2700, at 14@13c.; Buckeye, 10,700, at 43@39c.; Gold Placer, 2300, at 29@26c.; Lacrosse, 15,000, at 30@28c. Dahlonega is reported to have exhausted all funds, and made a grand fizzle. We have frequently advised caution toward Buckeye. A much trusted correspondent gives us such information as shows that our warning that the public were again about to be "taken in," was not without grounds. We think that any of our readers who will take the trouble to look up this information will not touch the stock, and those who have it will wish they hadn't. The Bertha and Edith stockholders have had a meeting, and confirmed every thing that was lately asked of them. They are quite willing that the public should loan them money, buy their stock, or any thing of that sort.

A NEW BONANZA IN THE SILVER ISLET.

Private advices of a reliable character just received state that a rich bonanza has really been found in the once famous Silver Islet mine. We believe the report to be well founded, and expect to see quite a revival of the excitement which the mine created in its early days when large fortunes were made in it. No doubt this find will greatly encourage the stockholders in Duncan, and those interested in other Lake Superior property, and, what is of far more importance, it will encourage the owners of mines there to adopt systematic plans for the exploration of their properties in depth. We congratulate the patient holders of Silver Islet on their good luck.

SAN FRANCISCO MINING STOCK QUOTATIONS.

Daily Range of Prices for the Week.

NAME OF COMPANY	CLOSING QUOTATIONS Aug. 23.	Aug. 24.	Aug. 26.	Aug. 27.	Aug. 28.	Aug. 29.	Opening Aug. 30.
Alpha.....	15⅛	15¼	14¾	16	15¾	16¾	17
Belcher	10⅞	11⅞	11⅞	12¾	12⅝	14	13½
Best & Bel.	18¼	18¾	18¼	19¾	20	20¾	24½
Bullion.....	11⅜	11¼	12⅜	12	11	10⅞	.....
Caledonia..	3⅜	3¾	3⅞	5⅜	5	4⅝	.....
California..	11⅝	11¼	12	11⅞	12¾	14¼	14
Chollar-Pot	35	37	37	36	38¾	39½	39
Con. Imp...	.....	.....	.....	.....	.....	.....	.....
Con. Va.....	9⅛	9⅛	11⅛	11⅛	11⅝	12⅞	13
Confidence.	5⅞	6	5¾	6½	8	12¼	.....
Crown P'int	9⅝	9½	9	11	10¼	10⅞	11
Eureka Con	36½	41¾	41	41	41¼	40	41
Exchequer.	6⅝	5¾	6⅝	5¾	5⅜	5⅝	.....
Gould &Cur	10½	9⅞	10	10½	10⅞	12⅞	12½
Grand Prize	5⅞	5⅜	5⅞	6	5¾	6	.....
Hale & Nor.	9⅛	9¼	9⅛	9¾	9⅞	10⅝	10½
Julia.....	15⅛	14⅞	17	13	12⅝	10¼	.....
Justice.....	9⅝	9⅛	9¾	8⅞	7⅝	8⅞	9
Kentuck ...	6	5¼	5¼	5⅞	5¾	6⅛	.....
Mexican....	22⅝	24½	23¾	25⅜	31	35¼	31½
North. Belle	.....	.....	10½	10¼	10	9½	.....
Ophir	43	44½	43¼	43	46¼	48	48
Overman...	15⅞	15½	17½	21⅛	20⅞	20¼	20
Ray. & Ely.	.....	2½	3¼	3¼	3½	3½	3¼
Silver Hill..	3½	.....	4	3¾	4	4	.....
Savage.....	12½	.....	13⅜	12⅞	13¼	14⅛	14
Seg.Belcher	26	35	.....	.....	40	40	.....
Sierra Nev.	40¼	44¾	45¼	49¼	66	72½	70
Union Con.	.....	30	33½	34½	43⅛	47	43
Yel. Jacket.	15¼	16¼	16⅞	19¾	20½	27½	24½

A comparison of to-day's quotations in the above list with those prevailing on the 23d inst. shows an improvement of from 1 to over 80 per cent in nearly every stock quoted. The principal interest and the greatest advance is in the stock of the supposed new bonanza mine, the Sierra Nevada. At one period yesterday, during an unusually excited state of the market, the stock sold up to $86 per share, selling down again to $66, and closing at $72½; it opens to-day at $70, equal to a market value of $7,000,000 for the mine, against $4,000,000 a week ago. That this mine is in bonanza scarcely now admits of doubt; but the width, depth and extent of the new ore-body is not known, at least by the public. The company has increased its working force to 175 men and its expenses correspondingly, they probably averaging now $1000 per day. Union Consolidated has correspondingly advanced, attaining $47 yesterday, and opening at $40 to-day, against $27½ a week ago. This mine is capitalized at $10,000,000, the same as the Sierra Nevada. Segregated Belcher and Yellow Jacket occupy the next prominent positions in the advance movement, the former stock closing at $40 per share yesterday, against $26 on the 23d, and the latter opening at $24½, against $15 a week ago. In sympathy with the general buoyancy of the market, the old bonanzas, California and Consolidated Virginia, have advanced $2½ and $3½ per share, respectively. The output of the two mines scarcely reaches 400 tons per day. Ophir has advanced $6½ per share, opening to-day at $48. The *Gold Hill News* says:

"The face of the header in the Sutro Tunnel is still in quartz and porphyry, with streaks and bunches of low-grade ore. Total length of tunnel at the present time, 20,385 feet.

"On the 26th inst. the ground was broken for the south lateral branch of the Sutro Tunnel to the top of the Julia shaft, 1400 feet distant. It is expected the connection will be made by December 1st. From the Julia mine the branch will be extended southerly to Gold Hill, and another branch will diverge near the Belcher mine toward American flat.

"The agreement between the tunnel company and Julia reads as follows: 'The Julia is to pay the tunnel company $100,000, of which $20,000 is to be paid down, and the balance monthly as the work progresses, at the rate of $70 per foot, the whole amount not to exceed $100,000. The Julia Company is to be entitled to a drawback of $70 per foot on a drift to be run by the company from the shaft to expedite the connection.' No definite bargain has been made concerning the acquirement of the tunnel title to the ground by the Julia Company, the arrangement in this respect being an open one, pending the definite settlement of the limits of the Comstock lode. The contract was signed August 21st."

Eureka Consolidated stock has advanced to $41, against $36 last week. This company is regularly paying $3 per share a month to its stockholders in dividends equal to $36 per annum, or 36 per cent on its capital. The market value of the stock is but little in excess of the apparent ability of this mine to return

annually its present market value to its shareholders in dividends.

A recent letter from the mine says:

"The ore bodies continue to look as well as ever, with no apparent decrease of the amount of ore in sight. The ore-bodies are yielding as largely as ever, there being some 1000 tons extracted since the last report, and 133 feet of drifts run. The furnaces will be running on full time to-morrow, as then the connections entering the dust-chamber will be completed. The dust-chamber will not be completed before the last of next week."

The *Commercial Herald* of the 22d says of the market:

"Marked activity characterized the mining stock market the past week, the transactions in the Boards in outside stocks having assumed vast proportions, many additions having been made to the list within the past month, and comparatively new, unknown stocks having advanced to figures that are sure to leave a most painful sting in the near future. The opportunity has been most favorable for the placement of these wild-cat shares, and it has been equally good for the levying of assessments, for in active times like the present they are more readily collected, even on the most worthless stocks. One hundred and twelve different mining stocks were called the past week, according to the record of the San Francisco Board, and the aggregate sales in the regular sessions reached nearly $4,000,000. We have all sorts of good reports—telegraphically and otherwise—but they must all be taken with large grains of allowance as to the outcome under the feverish condition of the market."

A contemporary observes: "Reports from Montana indicate the approach of a regular gold fever both in quartz and placer mining," and adds:

"The reports relative to the extraordinary developments of Montana, Eastern Oregon, Bodie District, California, and especially of the Smartsville gravel beds, as shown in the '*débris* mining suit,' are silently leading capital in this direction for profitable investment. * * * The evidences are accumulating that we are approaching a new era in mining, or that we are about to reënter upon the old era of 1849, and the lavish years succeeding. In all probability our gold productions are soon to far exceed those of any other periods of our history. Old mining localities in every county of the states are seized with a spirit of revival, and mines which have lain unworked for years are being started anew, with the most flattering prospects. Ore can now be milled at as low a cost as 65 cents per ton, and the expense of raising the ores from the mines is now reduced to a mere nominal figure. It requires no prophet to predict with certainty that within a brief period gold mining will take its place as a safe and remunerative calling."

Reddington Quicksilver Mine.—The dividend of $120 announced in our issue of the 17th inst., was for a period of seventeen months, the last previous one having been declared in January, 1877. The company held a large portion of its product during that time, selling only enough to pay current expenses, but in June last decided to realize on accumulated stock and divide the profits. The dividend of $120 was a little over $7 per share a month for the seventeen months, the capital stock being $1,260,000, divided into 1260 shares. The total amount of dividends declared by the company up to July, 1878, has been $1,052,100.

Assessments with dates when delinquent: Utah, $2, September 18th; Northern King, 10c., September 21st: Bechtel, 50c., September 19th; Aurora Tunnel, 15c., September 12th; Electric, 3c., September 19th.

A

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Leave Philadelphia from station North Pennsylvania Railroad, Third and Berks Streets, at 6:45 (way), 7:45, 9:30, 11:30 A. M., 1:30, 2:30, 4:15, 5:45, 12:00 P. M.

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A NEW PROCESS FOR DESILVERING LEAD.

See issue of JOURNAL July 13th, 1878.

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